Ardea Resources Limited

QUARTERLY OPERATIONS REPORT

For the Quarter ended 30 June 2021

ASX & Media Release

27 July 2021

ASX Symbol

ARL

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Executive Management

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General Manager Exploration

Issued Capital

Fully Paid Ordinary Shares
138,034,219

Directors/Employee Performance Rights
4,236,000

ABN 30 614 289 342

CORPORATE

Ardea Resources Limited (**Ardea** or the **Company**) continues to advance their flagship Kalgoorlie Nickel Project (**KNP**) in the Eastern Goldfields of Western Australia (**WA**) with no disruption from COVID-19.

Ardea remains debt free, with a tight capital structure and strong cash position. The Company had $5.7M cash-at-bank at, the end of the June 2021 Quarter. A placement with Clients of Petra Capital (ASX release 28 June 2021), raised $5.7M before costs. Ardea funds available by 5 July 2021, total **$11M** (after costs).

Strategic opportunities to further consolidate Ardea's tenement base continue. The current focus is the planned Kalgoorlie-Boulder gold IPO spin-out, **Kalgoorlie Gold Mining Limited** (**KalGold**), with planned In-Specie share distribution.

DEVELOPMENT

Kalgoorlie Nickel Project

- **Strategic Partner** process ramped up with increased engagement with key stake holders such as the Critical Minerals Facilitation Office and Austrade. Demand for sustainable and ethical Lithium Ion Battery mineral supply continues to grow with corresponding increase in OEMs wanting to secure nickel and cobalt from the premium operating jurisdiction in the world, WA.
- **Highway resource update increases the Goongarrie Hub high-grade inventory to 78 million tonnes at 1.0% nickel**[1].
- **KNP Feasibility Study accelerated** with hydrology drilling completed, production bores planned, metallurgical drilling in progress.
- **Gap Analysis Study** underway with international engineering consultant Wood to consolidate all KNP data to feed into the Definitive Feasibility Study.
- **Nickel hydrometallurgical process specialist, Mike Miller,** appointed as Ardea's General Manager Technical Services.
- **Industry Partnership work** continues with the Future Battery Industry Co-operative Research Centre (**FBICRC**) and **CSIRO**.

EXPLORATION

WA Nickel Sulphide, Critical Minerals and Gold

Exploration success continues to be achieved on Ardea's strategic KNP tenements for nickel-copper-PGE sulphide, Critical Minerals and gold.

- **Nickel Sulphide** – Emu Lake diamond drill hole AELD0002, confirms a Silver Swan/Kambalda-style komatiite-hosted basal high-grade nickel sulphide zone above a felsic volcanic footwall contact on a new horizon:[2]
  - **1.1m @ 4.78% Ni**, 0.16% Cu, 0.47g/t Pt, 0.20g/t Pd from 366.9m downhole, within a broader zone of **4.8m @ 1.44% Ni** 365.9m depth.
- **Bardoc Tectonic Zone Critical Minerals and Gold** – Multiple significant gold intercepts returned from site infrastructure drilling at Lady Charlotte, Lily Albany, Zeus and BD-X prospects within the Goongarrie Hub.

[1] Ardea ASX releases 15 February 2021 and 16 June 2021.
[2] Ardea ASX release 10 June 2021.

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June 2021 Quarter

Environmental, Social and (Corporate) Governance

Ardea and importantly the Original Equipment Manufacturers (**OEM**) with whom it deals all operate to ensure Environmental, Social and (Corporate) Governance (**ESG**) considerations are at the forefront of the way in which the Company does business and assesses societal impact. All project designs and work practices are predicated on ensuring the Company minimises green-house gas emission per tonne of nickel equivalent production. In doing so, the Company can ensure responsible sourcing of critical mineral supply, through sustainable and ethical production.

Responsible sourcing of materials, through mechanisms such as mandatory reporting of CO_2 footprints for all batteries sold is essential. Traceability is also being implemented with raw materials used in batteries that must be procured according to OECD guidelines for sustainable sourcing. These important considerations are an essential part of the feasibility study work Ardea is undertaking on the KNP, notably through its FBICRC membership.

All project development is predicated on minimising carbon emissions and being able to contribute towards achieving the State of Western Australia's aspiration of net zero emissions by 2050. The proposed flowsheet (Figure 4) has been modified for CO_2 mitigation in the neutralisation through introducing an Atmospheric Leach (**AL**) circuit.

Ardea enjoys strong support from the communities in which we operate, primarily the City of Kalgoorlie-Boulder and the Shire of Menzies, and has a Native Title Agreement in place for development of the Goongarrie Hub.

Ardea has implemented an education fund to help provide educational opportunities for Indigenous students in the communities within which we operate. This is managed independently of Ardea.

The Ardea Team are the Company's most important asset and comprise over 31% female participation, all in key management roles. The Company is a strong advocate for gender equality and fair representation for all community groups. All personnel and their families are offered complimentary support by a 'wellbeing' service provider.

Nickel Sector Commentary

The nickel sector continues to experience a rapid rise in demand linked to the Lithium Ion Battery (**LIB**) supply chain as well as traditional uses such as stainless steel (Figure 1). Current nickel production levels are not expected to keep pace with demand with all currently identified laterite and sulphide nickel deposits that can ensure sustainable and ethical mineral supply expected to be developed in the years ahead to meet this demand.

With Ardea's Kalgoorlie Nickel Project (**KNP**) hosting one of the largest nickel-cobalt resources in the developed world, **830Mt at 0.71% Ni and 0.046% Co (5.9Mt contained nickel metal, 380kt contained cobalt metal** – ASX release 16 June 2021), Ardea is well placed to provide essential supplies of sustainably sourced nickel and cobalt, along with other Critical Minerals (notably scandium and the Rare Earths neodymium, praseodymium and cerium). Based on projected demand (Figure 1), by 2040, the World would consume the full KNP nickel resource equivalent within some 18 months.

Ardea is pleased to see the growing momentum and support for critical minerals within Australia and demonstrated by recent publications, such as the FBICRC "Future Charge, Building Australia's Battery Industries" and Australian Government Department of Industry, Science, Energy and Resources Office of the Chief Economist "Outlook for selected critical minerals: Australian 2021 report".

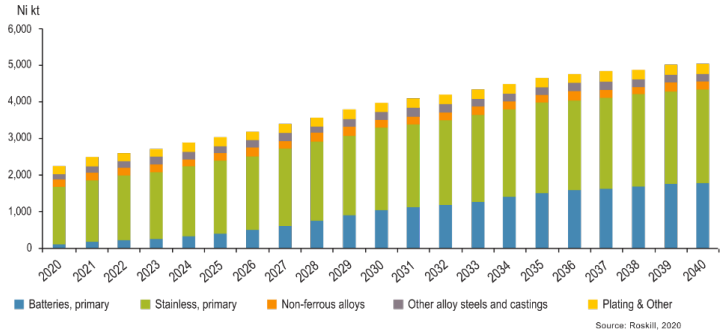

Figure 1: Total primary nickel demand estimate by first use sector from 2020 to 2040 (kt nickel), after Roskill 2020.

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1. KALGOORLIE NICKEL PROJECT - GOONGARRIE HUB

The Goongarrie Hub is located 70km northwest of the mining city of Kalgoorlie-Boulder and is Ardea's most advanced project, within the broader Kalgoorlie Nickel Project (Figure 2). Resources from the Goongarrie and Highway deposits are planned to be the base load feed for a 2.25Mtpa High Pressure Acid Leach (**HPAL**) plant located at Goongarrie. The resources at Goongarrie are dominantly the premium goethite style and extend continuously over 25km of strike and at Highway, 30km north, over a strike length of 6km. All Goongarrie Hub resources are located on granted mining leases with Native Title Agreement in place and tenure 100%-controlled by Ardea.

The project also has mobile coverage and ready access to high quality infrastructure with the Goldfields Highway, rail line and power infrastructure passing through the project area (Figure 3). There are two port options, these being Kwinana and Esperance, that are also serviced by the road and rail network.

Critically, the KNP is located on the rail connection to the developing battery hub at the Port of Kwinana industrial area immediately south of Perth. Ardea is engaged with all State and Commonwealth statutory authorities who are coordinating the push for a downstream battery industry within the State of Western Australia where all the feedstocks, including nickel and cobalt, are available at the critical scales required.

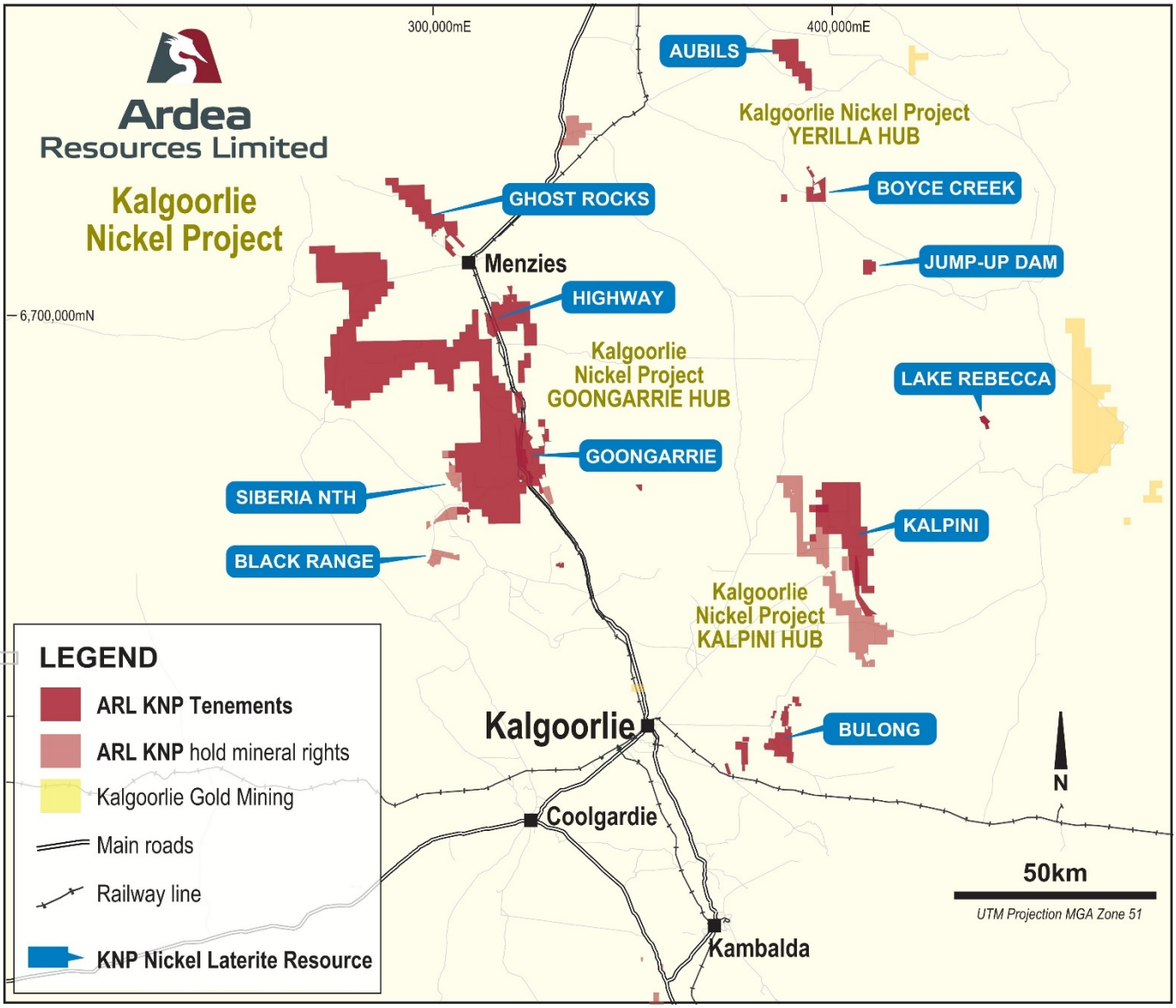

Figure 2: KNP location and infrastructure plan. Projection GDA94 MGA94 Zone 51.

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Figure 3: Aerial image of Ardea's Goongarrie Hub.

Photo looking north showing road and rail infrastructure within the project and the benign semi-arid woodland environment, ideal for project development and rapid revegetation post mining.

The train in the photo is returning from Leonora with nickel sulphide concentrates destined for the developing Kwinana Battery Hub.

Contrast this photograph with nickel laterite projects in tropical rainforests adjoining the Pacific Ocean, or in eastern Australia food production centres.

Feasibility Programs

The KNP is owned 100% by Ardea and is undergoing a Feasibility Study for a 2.25Mtpa High Pressure Acid Leach (**HPAL**) operation, further supplemented with an Atmospheric Leach (**AL**) processing operation (Figure 4).

KNP will initially produce Mixed Hydroxide Product (**MHP**) and following attainment of steady production, can potentially produce Precursor Cathode-active Material (**PCAM**) as an ethical and sustainable supply chain for the Lithium Ion Battery sector.

Ardea's current Feasibility Study strategy is aimed at adding further value to the development of the Goongarrie Hub and supporting resources within the KNP. One of the main outcomes has been to optimise plant feed to a 2.25Mtpa HPAL plant at leach feed grades exceeding 1% nickel for the 25 years "life-of-mine", requiring at least 56.25 million tonnes. With the completion of the Goongarrie Line (15 February 2021) and Highway (16 June 2021) resource updates defining a high-grade core of **78 million tonnes at 1.0% nickel**, this goal has been greatly exceeded. Significant cobalt, scandium and manganese components have also been quantified.

With options available such as developing a second KNP 2.25Mtpa HPAL train, as dependent upon the production requirements of the successful Strategic Partner, Ardea is in a unique position within Australia of having this resource optionality due to the large size and exceptional quality of the nickel and cobalt resources, facilitating high grading and selective recovery of key geo-metallurgical mineralisation types.

Gap Analysis Study

During the Quarter, Ardea appointed global consulting engineering firm, Wood, to complete a Gap Analysis Study (**GAS**), reviewing and consolidating all KNP feasibility data, including Ardea's successful Goongarrie Prefeasibility Study (ASX release 28 March 2018) and Expansion Study (ASX release 24 July 2018). Previous studies by Vale Inco in 2009, Heron in 2010 and now Ardea in 2017 to 2018 has seen well in excess of A$55 million expended on PFS level programs.

The considerable feasibility work undertaken by Ardea since the 2018 studies were completed, have culminated in the definition of an enhanced base case flow sheet (Figure 4) being assessed as part of the GAS. The GAS study is expected to be completed late in H2, 2021 and along with metallurgical drilling and planned testwork results, will lock in a final scope of work to complete the Definitive Feasibility Study.

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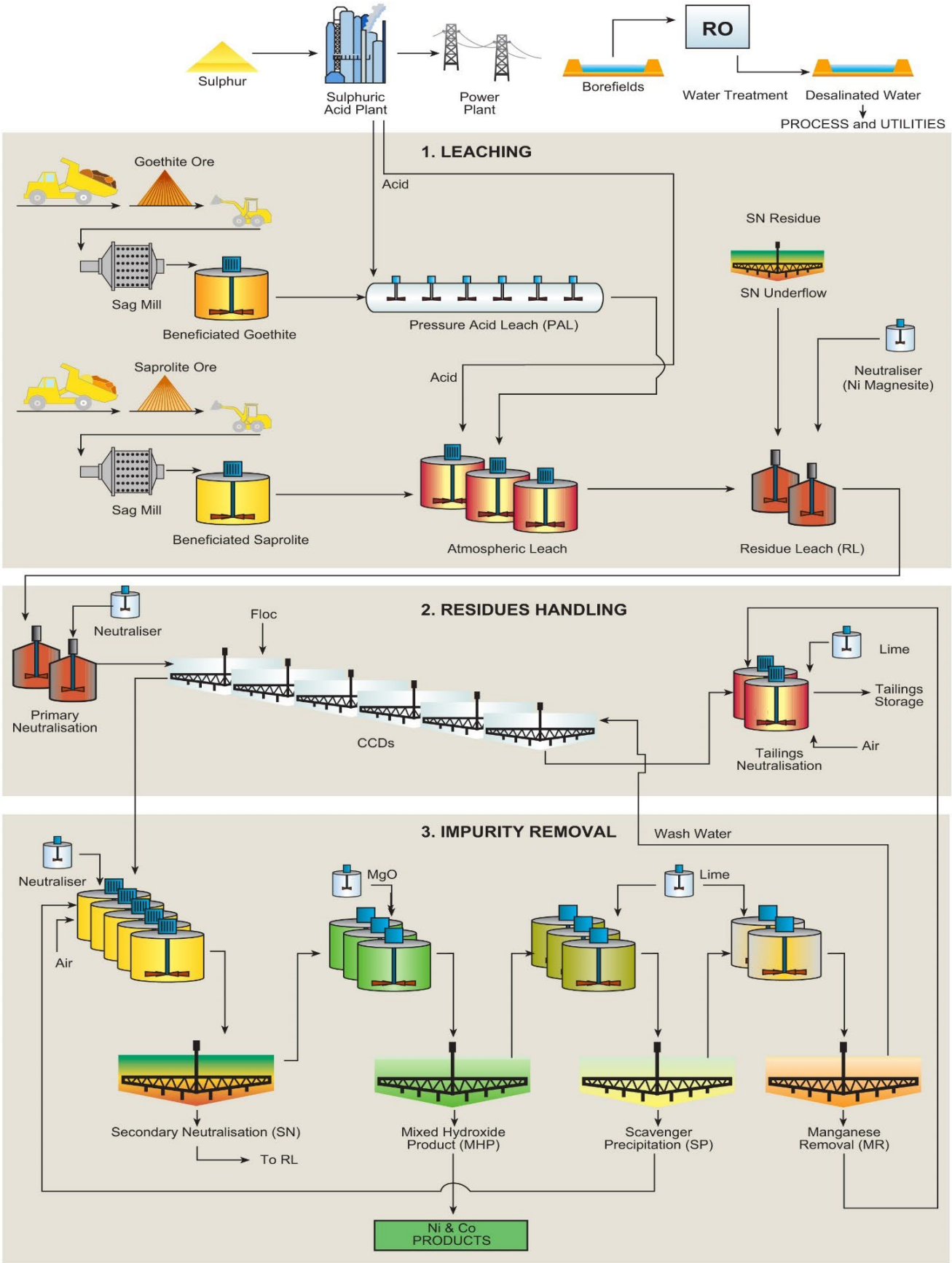

Figure 4: Goongarrie Hub process flow sheet.

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Resource Modelling

Over the past 18 months, the KNP has undergone a series of high-grade nickel optimisations for >1% nickel plant feed options, leading to "desk-top" by-product metallurgical studies including scandium, and ensuring that all mineral resource estimation uses uniform methodologies. A review of the full KNP high-grade nickel Mineral Resource Estimate (**MRE**) is current.

Highway is an integral element in a proposed mining and ore processing infrastructure development at the KNP Goongarrie Hub and is located 30km north of the proposed Goongarrie plant site which in turn is located 70km northwest of the City of Kalgoorlie-Boulder in Western Australia (Figure 2).

During the Quarter, the MRE update for Highway was completed using the same modelling processes applied to the Goongarrie deposits (ASX release 15 February 2021).

The results of the MRE update for Highway are summarised below (Table 1).

Table 1 - Highway nickel and cobalt Mineral Resources and updated KNP Mineral Resources.

	Highway MRE based on 0.8% Ni cut-off grade	Highway MRE based on 0.5% Ni cut-off grade	KNP MRE based on 0.5% Ni cut-off grade
Measured Indicated & Inferred MRE	**19Mt at 1.00% Ni and 0.053% Co** Contained metal **188kt nickel and 10kt cobalt**	**92Mt at 0.69% Ni and 0.038% Co** Contained metal **633kt nickel and 35kt cobalt**	**830Mt at 0.71% Ni and 0.046% Co** Contained metal **5.9Mt nickel and 384kt cobalt**
Notes	Resources include **23Mt of saprock at 0.68% Ni, 0.023% Co** with 33% carbonate mineral content (as magnesite and dolomite). All tonnages and grades rounded to two digit precision.		

The combined Mineral Resources at the Goongarrie and Highway deposits that are planned to feed a starter 2.25Mtpa processing plant development at the KNP Goongarrie Hub are reported below (Table 2), with an initial focus on the high-grade resource based on a 0.8% Ni cut-off:

Table 2 - Highway and Goongarrie (ASX release 15 February 2021) nickel and cobalt Mineral Resources using a 0.8% Ni cut-off grade

Deposit	Resource Category	Tonnes (Mt)	Ni %	Co %	Contained Metal Ni (kt)	Contained Metal Co (kt)
Goongarrie Hub (GH, GS, BF & SD)	Measured	11.0	1.13	0.106	125	11.6
	Indicated	41.5	0.97	0.070	404	29.0
	Inferred	7.1	0.95	0.051	67	3.6
	Subtotal	59.6	1.00	0.074	595	44.3
Highway	Indicated	15.1	1.01	0.053	152	8.0
	Inferred	3.7	0.98	0.053	36	2.0
	Subtotal	18.8	1.00	0.053	188	10.0
Combined Deposits	Measured	11.0	1.13	0.106	125	11.6
	Indicated	56.5	0.98	0.066	556	37.1
	Inferred	10.8	0.95	0.051	103	5.6
	Grand Total	**78.3**	**1.00**	**0.069**	**784**	**54.3**

Ardea's updated 2021 Goongarrie and Highway resource estimates were incorporated with historic KNP resource estimates compiled by various parties between 2004 and 2009 and signed off to meet JORC-2012 guidelines by Heron Resources in 2013 (refer Table 3 below).

The significant observation is that the KNP Goongarrie Hub estimate of 561Mt will be quite able to supply premium plant feed to a HPAL process plant located at Goongarrie for multiple decades.

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Table 3 – Updated KNP nickel and cobalt Mineral Resources based on a 0.5% Ni cut-off grade

Camp	Prospect	Resource Category	Size (Mt)	Ni (%)	Co (%)	Contained Metal Ni (kt)	Contained Metal Co (kt)	Estimation Details Method	Estimation Details Source	Estimation Details Year
Goongarrie	Goongarrie South	Measured	18	0.94	0.085	171	15	LUC	Ardea	2021
		Indicated	82	0.71	0.049	584	40	LUC	Ardea	2021
		Inferred	10	0.64	0.033	61	3	LUC	Ardea	2021
	Highway	Indicated	71	0.69	0.038	487	27	LUC	Ardea	2021
		Inferred	21	0.67	0.040	141	8	LUC	Ardea	2021
	Ghost Rocks	Inferred	47	0.66	0.042	312	20	OK	Snowden	2004
	Goongarrie Hill	Indicated	40	0.65	0.037	259	15	LUC	Ardea	2021
		Inferred	29	0.60	0.025	176	7	LUC	Ardea	2021
	Big Four	Indicated	49	0.71	0.047	346	23	LUC	Ardea	2021
		Inferred	14	0.68	0.043	96	6	LUC	Ardea	2021
	Scotia	Indicated	12	0.71	0.065	82	7	LUC	Ardea	2021
		Inferred	5	0.72	0.043	37	2	LUC	Ardea	2021
	Goongarrie Subtotal	Measured	18	0.94	0.085	171	15			
		Indicated	253	0.69	0.044	1,758	112			
		Inferred	127	0.65	0.037	823	47			
		Combined	***398***	***0.69***	***0.044***	***2,753***	***175***			
Siberia	Siberia South	Inferred	81	0.65	0.033	523	27	OK	Snowden	2004
	Siberia North	Indicated	10	0.64	0.051	64	5	OK	Snowden	2009
		Inferred	53	0.66	0.043	352	23	OK	Snowden	2009
	Black Range	Indicated	9	0.67	0.090	62	8	OK	HGMC	2017
		Inferred	10	0.69	0.100	68	10	OK	HGMC	2017
	Siberia Subtotal	Indicated	19	0.65	0.070	126	13			
		Inferred	144	0.66	0.041	943	59			
		Combined	163	0.66	0.045	1,070	73			
KNP Goongarrie Hub	**TOTAL**	Measured	18	0.94	0.085	171	15			
		Indicated	272	0.69	0.046	1,885	126			
		Inferred	270	0.65	0.039	1,767	107			
		Combined	***561***	***0.68***	***0.044***	***3,822***	***248***			
Bulong	Taurus	Inferred	14	0.84	0.051	119	7	OK	Snowden	2007
	Bulong East	Indicated	16	1.06	0.055	169	9	OK	Snowden	2004
	Bulong East	Inferred	24	0.79	0.053	190	13	OK	Snowden	2004
	Bulong Subtotal	Indicated	16	1.06	0.055	169	9			
		Inferred	38	0.81	0.052	309	20			
		Combined	***54***	***0.88***	***0.053***	***477***	***29***			
Hampton	Kalpini	Inferred	75	0.73	0.044	550	33	OK	Snowden	2004
	Hampton Subtotal	Inferred	75	0.73	0.044	550	33			
KNP Kalpini Hub	**TOTAL**	Indicated	16	1.06	0.055	169	9			
		Inferred	114	0.76	0.047	859	53			
		Combined	***130***	***0.79***	***0.048***	***1,028***	***62***			
Yerilla	Jump Up Dam	Measured	4	0.94	0.048	36	2	OK	Snowden	2008
		Indicated	42	0.78	0.043	324	18	OK	Snowden	2008
		Inferred	18	0.63	0.034	116	6	OK	Snowden	2008
	Boyce Creek	Indicated	27	0.77	0.058	206	16	OK	Snowden	2009
	Aubils	Inferred	49	0.70	0.066	346	33	OK	Heron	2008
KNP Yerilla Hub	**TOTAL**	Measured	4	0.94	0.048	36	2			
		Indicated	68	0.78	0.049	531	33			
		Inferred	68	0.68	0.057	462	39			
		Combined	***140***	***0.73***	***0.053***	***1,028***	***74***			
KNP TOTAL		Measured	22	0.94	0.079	207	17			
		Indicated	357	0.72	0.047	2,584	168			
		Inferred	452	0.68	0.044	3,088	199			
	GRAND TOTAL	***Combined***	***830***	***0.71***	***0.046***	***5,879***	***384***			

Legend: LUC – Local Uniform Conditioning; OK – Ordinary Kriging.

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Processing Research and Development - Scandium and Rare Earth Elements

Within Ardea's KNP tenure the priority Research and Development (**R&D**) focus continues upon the Critical Minerals essential for the new age technologies used in limiting carbon emissions, such as the Electric Vehicle (EV), Static Storage Battery (SSB) and wind-turbine sectors.

Highly-sought Critical Minerals within the KNP lateritic enrichment profile include:

- Nickel-manganese-cobalt (NMC) content in LIB including precursor cathode-active material;
- EV electric motor REE magnet metals, most notably Nd-Pr. The KNP also has common Ce, and potential for Dy, La, Tb.
- Scandium for scandium-aluminium lightweight, high-strength fabrication in general and EV chassis in particular;
- Vanadium for community-scale and larger SSBs;
- Critical Minerals targets at potentially extractable grades identified during KNP R&D include:
  - Ba, Cr, Ga, In, Mo, Te, Ti, Sn, W, Y, Zr; and
  - Extra PGEs - Ru, Rh, Os (due to excessive assay cost, using Pt-Pd as a pathfinder in pulp re-assay).

All of these Critical Minerals can be assessed because the HPAL process requires complete dissolution of goethitie Ni-Co mineralisation, thereby rendering all contained metals into solution and thus amenable to recovery. **This does not require each of these metals to be in stand-alone economic concentrations in their own right**. Rather, recovery of these minerals relies on nickel and cobalt recovery, potentially providing significant credits and upside to the project economics.

Critical Minerals research and development is predicated on the Ardea multi-element assay suite used in all sampling programs. The main R&D focus for the Company continues to be searching the archived Ardea drilling sample pulps for re-assay for Critical Minerals (notably REE co-products and fertile nickel sulphide multi-element ratios for PGEs).

Table 4 – Goongarrie Indicative scandium and REE intersections associated with nickel laterite mineralisation (ASX releases 15 February & 16 June 2021).

Pit Area	Drill Hole	Interval m	Width m	Ni %	Co %	Mn %	Sc ppm	Y ppm	Ce ppm	La ppm	Nd ppm	Pr ppm
Highway	HWRC0268	4-6	2	**2.40**	**0.224**	0.12	**100**	**250**	**1230**	**901**	**685**	**193**
Elsie North	AGSR001	14-18	4	0.85	**0.21**	**0.98**	43	6	**968**	10	14	4
Pamela Jean	AGSR170	22-24	2	0.63	0.05	**0.24**	43	**318**	32	**216**	**340**	**75**
Patricia Anne	AGSR392	24-26	2	0.49	0.07	0.11	52	**215**	**1120**	**260**	**341**	**87**
Patricia Anne	AGSR430	8-14	6	**1.05**	**0.77**	**4.60**	14	57	447	161	**135**	38
Pamela Jean	GSDD004	15-21	6	0.66	0.03	0.07	**161**	6	15	4	4	1
Pamela Jean	GSRC986	29-32	3	0.81	0.04	0.10	8	72	101	103	**110**	28
Canegrass South	ABFR012	22-24	2	0.63	0.01	0.13	**122**	14	34	7	8	2
Canegrass South	ABFR014	26-28	2	0.51	0.05	**0.52**	**128**	8	43	5	7	2
Mavis North	ABFR061	20-28	8	0.24	0.05	**0.76**	37	190	315	70	**110**	26
Mavis South	ABFR164	12-16	4	0.40	0.07	**0.36**	36	8	**1125**	12	16	5

Critical Minerals

Ardea continues to engage with the Commonwealth Critical Minerals Facilitation Office and other State and Federal agencies. Meetings with various industry groups also continue.

During the Quarter, research continued on the Ardea drill hole data base, defining multiple Critical Minerals REE settings. The REE enrichment mirrors nickel-cobalt enrichment at the Magnesia Discontinuity within the regolith.

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The R&D programs have focussed on HPAL REE recovery (notably neodymium, praseodymium and cerium) in parallel circuit with scandium (using Ion Exchange).

An example of the indicative scandium and REE intersections associated with nickel laterite mineralisation within the Goongarrie and Highway deposits are shown in the above table (Table 4). Further work is continuing on other deposits within the KNP to help determine Critical Mineral potential and the viability of being able to extract these from the HPAL Pregnant Liquor Solution (**PLS**) as by-products.

No bench-scale metallurgical test work has yet been completed on REE mineralisation styles. However, desk-top studies suggest a compatibility between REE and scandium in terms of potential metallurgical attributes, which would be expected due to their similar reaction chemistries.

Scandium and REEs are expected to be taken into solution in the proposed HPAL processing flowsheet for the KNP and could be produced as a by-product. Preliminary calculations for the extraction and deportment of the REEs have been developed and, with testwork support, will be used for the guidance of future investigations.

Historic drill assay pulps continue to be systematically re-assayed throughout the KNP on a nominal 80mx80m to 160mx80m collar spacing. The main projects reviewed during the Quarter were Highway, Kalpini, Bulong and Siberia. Pulp assay results will continue to be reviewed and interpreted, with appropriate follow-up work planned.

FBICRC

The Future Battery Industry Co-operative Research Centre (**FBICRC**) is an independent centre where industry, government and researchers can come together to create the tools, technologies, and skills to grow the role of battery storage in Australia's electricity grids, and make Australia a larger downstream player in global battery value chains. FBICRC research projects will help expand Australia's battery minerals and chemicals production, develop opportunities for specialist battery manufacture, support the deployment of batteries to households, communities, and industry, and optimise the circular economy for the use and re-use of battery systems. Ardea continues to work with the FBICRC team on the following work streams:

1. Cathode Precursor Project.
2. Innovative Nickel-Cobalt Extraction.
3. Electrochemical testing of Australian battery materials in standard cell formats.
4. Provenance and Trusted Supply Chains.
5. Certification and Environmental life Cycle Assessment.

Each one of these work streams is aimed at ensuring quality product specifications for the LIB sector and sustainable and ethical supply from the best-regarded operating jurisdiction in the world, Australia, led by Western Australia.

The FBICRC are currently building a Precursor Cathode Active Material plant at Curtin University in Perth and it is planned that current **drill core material from the Goongarrie Hub will be used to pilot PCAM flowsheets**. This initiative is seen as a natural progression towards the development of KNP resources, as the deposit can be mined to generate nickel, cobalt, and manganese in the required ratios for PCAM production in a responsible and sustainable manner.

Bench-scale Metallurgy

Diamond drilling commenced at the Goongarrie Hub on 18 July 2021 to obtain test material for bench-scale metallurgical studies involving PCAM metal recovery, mineralised neutraliser and Sc-REE refining. A detailed testwork program has been designed with the samples to be sent to a Perth metallurgical laboratory and supervised by Ardea's key process team.

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Hydrogeology

At Goongarrie, all nickel-cobalt-scandium resources are located on granted mining leases. As such, Ardea has first rights to any ground water underlying these areas. Past work by Ardea has defined multiple potential water sources with water for project development expected to be sourced from dedicated bores and conventional open pit dewatering ahead of mining.

Two applications for groundwater extraction licences (**GWL**) have been submitted to the WA Department of Water and Environmental Regulation (**DWER**) to secure this water from tenements already held by Ardea, near the planned Goongarrie Hub processing plant. The first application is for a draw of 2Gl/a from fractured bedrock and the second application is for a draw of 1.5Gl/a from palaeo-channel sands.

During the Quarter, a hydrogeology aircore drilling program was undertaken with 21 holes drilled for 1,181m. Results from this drilling program have been used to finalise the location of production bores, with hydrological drilling for production testing contracted to commence late in the September Quarter.

Both typical Eastern Goldfields saline water and potable water will be required for project development. Ardea's US-based nanofiltration R&D testwork has already demonstrated the potential for this technology to be used for softening the HPAL water feed and for recycling barren process water to reduce both the project's water consumption and its water evaporation pond footprint.

Environment and Rehabilitation

All project development within the KNP is aimed at ensuring systematic and rapid rehabilitation, concurrent with operations. During the Quarter, studies continued on minimising carbon emissions from KNP development.

The KNP is located within the Great Western Woodlands, the largest and healthiest temperate (Mediterranean climate) woodland remaining on Earth. The woodlands cover almost 16,000,000 hectares from the Nullarbor Plain in the east to the Wheatbelt in the west; from Esperance in the south through to the inland mulga country north of Kalgoorlie including the KNP as a very small component.

The Great Western Woodlands is an exceptionally well-managed "global biodiversity hotspot" with some 3,500 plant species (half of which are endemic), some 49 mammal species, 14 frog species, 138 reptile species and 215 bird species, all having flourished alongside world-class mining operations for the last 130 years.

Comprehensive KNP flora and fauna surveys by Vale Inco in 2009 and Ardea in 2017 have confirmed environmental sustainability within the "temperate dry laterite" ecosystem.

Mine rehabilitation methodology is facilitated through three decades of WA open pit gold mine operations, and the KNP footprint is minimised through use of mining voids for tailings and mullock (in any event KNP low strip ratio, so low mullock generation during mining).

The KNP's benign and manageable environmental footprint contrasts strongly with many tropical laterite projects. Such nickel laterite projects that are classified as a "wet tropical laterite" require marine tailings or valley tailings storage with consequent environmental risk (including seismic thixotropy). Additionally, wet tropical laterite production areas commonly involve non-restorable rain forest habitat destruction, which is justifiably a total anathema for OECD battery metal end-users.

Photo 1: Ardea Bulong nickel and gold area M25/151.

The immediate area was subject to intense alluvial dry-blower gold mining in the 1890s and 1930s with total flora denudation.

The eucalypt woodland in this photograph is totally natural regrowth, with only shaft mines still visible from the historic mining activity. The natural resilience of the KNP woodland is a unique and major project attribute.

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Project Consolidation

During the Quarter (ASX release 7 June 2021) the Company completed the purchase of additional mining tenure for the KNP to expand the project footprint.

The purchases relate to $1,800,000 for 1,554ha at the southern boundary of the Bulong Taurus nickel laterite deposit and $10,000 pursuant to a sale agreement clause in respect of the conversion of the Lady Charlotte Exploration Licences to a Mining Lease. The Bulong tenure is located 35km east and Lady Charlotte 65km northwest of Kalgoorlie.

The KNP Kalpini Hub includes the Bulong Taurus nickel laterite resource, an Inferred resource of 14Mt at 0.84% nickel and 0.051% cobalt for 119kt of contained nickel and 7kt of contained cobalt (Table 1-3, ARL ASX announcement 15 February 2021). The resource and host ultramafic effectively extend to the Mining Lease northern, eastern and western lease boundaries. The southern boundary contains the historic Great Ophir underground gold mine and battery sand dump, so is not available for laterite mine infrastructure. The Bulong Taurus acquisition provides continuity of tenure and access for the full Bulong nickel laterite resource containing 54Mt at 0.88% nickel and 0.053% cobalt for 477kt of contained nickel and 29kt of contained cobalt (Table 1-3, ARL ASX announcement 15 February 2021). It is intended that the gold rights for the Taurus acquisition will be transferred to the Ardea gold spin-out, **Kalgoorlie Gold Mining Limited** (**KalGold**) (ASX release, 31 May 2021).

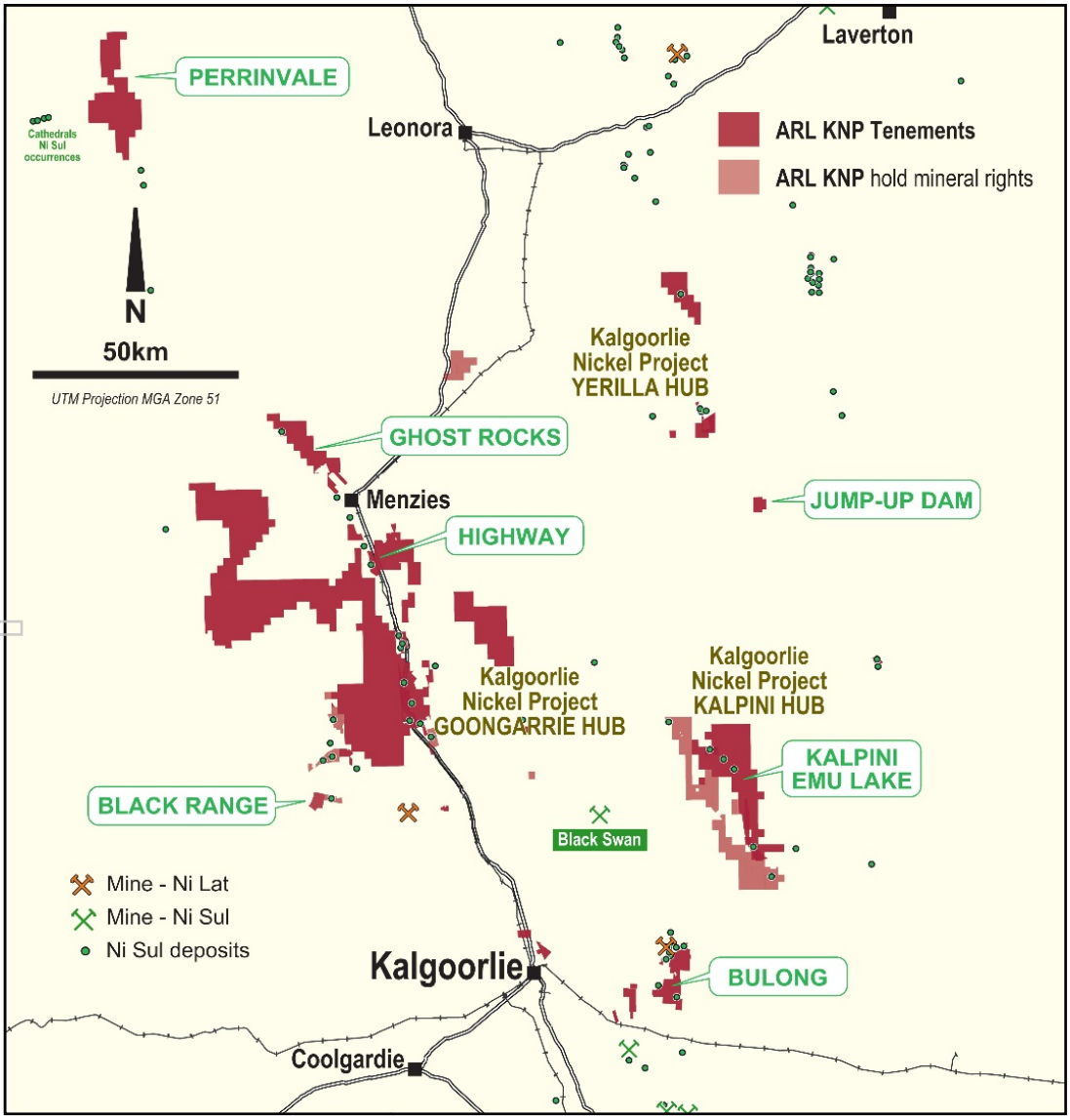

Figure 5: KNP Nickel Sulphide

Ardea's tenure, key nickel sulphide and PGE targets, Eastern Goldfields, WA. Projection: GDA94 MGA Zone 51.

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2. WA NICKEL SULPHIDE AND GOLD PROJECTS

Ardea's extensive and strategic land holding in the Eastern Goldfields of WA covers over 4,300km^2 and in addition to the globally significant nickel-cobalt-scandium KNP resource, is highly prospective for nickel sulphide, Critical Minerals and gold (Figure 2, 5 and 11).

Ardea Nickel Sulphide Strategy

Ardea's principal focus continues to be the development of the KNP, commencing with the Goongarrie Hub nickel laterite deposits. However, Ardea's strategic tenure in the heart of the Eastern Goldfields of Western Australia is also highly prospective for nickel sulphide which is mined extensively throughout the region. Ardea's nickel sulphide strategy complements the development of the KNP and is aimed at maximising returns for Shareholders.

The KNP nickel sulphide targets are a valuable asset in a region of multiple nickel sulphide concentrators, with some constrained by insufficient feed availability.

Ardea controls an extensive holding of ultramafic stratigraphy which hosts the KNP nickel laterite resources (Figure 5). This same tenure is highly prospective for both Kambalda style komatiite lava flow and Nova-Julimar style intrusive related nickel sulphide mineralisation. It is important to note that any nickel sulphide discovery has the potential to be processed supplementary to laterite mineralisation through the autoclave planned for Goongarrie.

Although sulphides would only be processed in limited quantities relative to the lateritic throughput, they have the added benefit of helping control autoclave oxidising potential, assisting exothermic reaction kinetics (reduce autoclave steam heating requirement), and typically improving overall nickel recoveries. An additional bonus is that metal concentrations considered deleterious to conventional nickel sulphide flotation concentrator processing (and that have historically curtailed development of several Eastern Goldfields deposits) do not affect the HPAL process, opening the possibility of mineral extraction from nickel sulphide deposits that may otherwise be overlooked.

During the Quarter, Ardea's nickel sulphide work included diamond drilling at Emu Lake, RC drilling at Highway and Black Range, and multiple surface and down-hole geophysical programs.

Emu Lake Nickel Sulphide and Gold Prospect

The Kalpini Nickel Project extends over 240km^2 and hosts 75Mt at 0.73% nickel and 0.044% cobalt occurring as lateritic nickel mineralisation (Ardea ASX announcement, 16 June 2021). The leading Ardea nickel sulphide target at Kalpini, Emu Lake, is located 70km north-east of Kalgoorlie (Figure 5). This strategic tenement package contains an East and West Ultramafic belt each with 20km of strike of prospective nickel sulphide ultramafic stratigraphy held 100% by Ardea and mostly within granted mining leases. The project is located 35km east of the Black Swan Nickel Project, owned by Poseidon Nickel Ltd, within a comparable parallel komatiite volcanic belt.

Recent Ardea drilling (ASX release 10 June and 13 July 2021) has intersected a semi-massive basal contact nickel sulphide occurrence in diamond drillhole AELD0002 and returned assays of:

- **1.1m @ 4.78% Ni, 0.16% Cu, 0.47g/t Pt, 0.20g/t Pd from 366.9m downhole consisting of semi-massive and matrix-style nickel sulphides, within a broader zone of:**
- **4.8m @ 1.44% Ni and 0.09% Cu, 0.20g/t Pt, 0.09g/t Pd from 365.9m depth.**

This represents one of the better nickel sulphide intercepts historically at Emu Lake (Figure 6) and demonstrates the prospectivity of this new more westerly ultramafic position that has received little attention in the past. Most previous drilling has been concentrated on the Binti Main zone to the north and east and which has intersected often remobilised stringers of nickel sulphide.

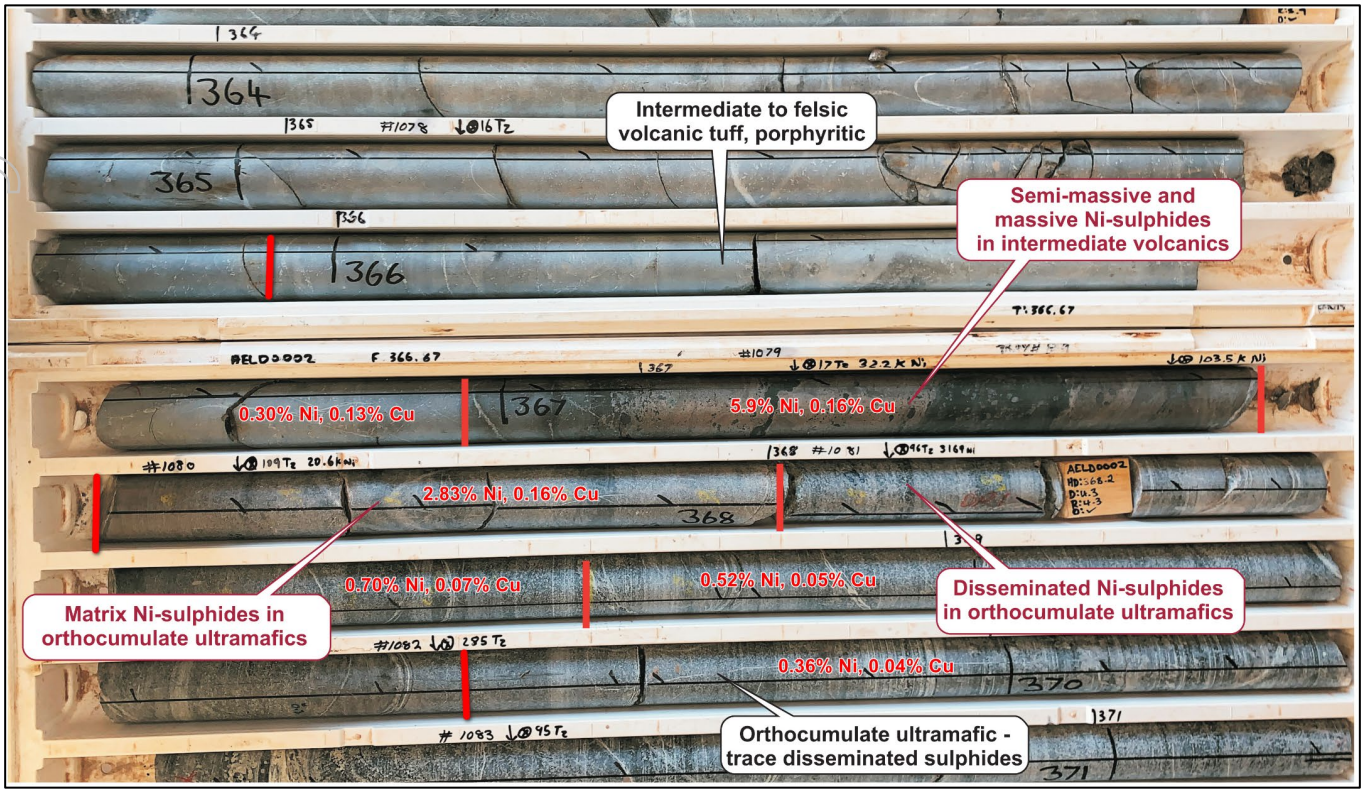

Figure 6: Ardea diamond drill hole, AELD0002 showing massive (top) and disseminated (bottom) sulphides and assay results.

Mise a la Masse and Downhole Magnetometric Resistivity Geophysical Surveys

DHEM surveys on AELD0002 generated a strong off-hole response directly south and below the nickel sulphide intercept, however, it was unclear from the DHEM the up-dip extent of the sulphide horizon.

Ardea's geophysical consultants, therefore, designed a Mise a la Masse (**MALM**) and downhole magnetometric resistivity (**DHMMR**) survey to better define the conductive horizon. The survey was undertaken in mid-June and results recently processed and interpreted.

The MALM survey measured the surface potential generated from a downhole electrode over an area of 400m x 300m (Figure 7) and produced a broad 550mV anomaly above and slightly south-west of the known nickel sulphide mineralisation.

The data are interpreted to indicate the sulphide body is steeply dipping to the east with a relatively short strike length (approximately 80m) and potentially comes to within 150m of surface. The strike of the body is northwest to southeast and is interpreted to extend to the southeast beyond AELD0001 (Figure 7 and 8).

The DHMMR data supported the MALM interpretation with currents flowing in a NW-SE direction along at least four different pathways creating a more complex situation to model reliably. However, the source has been interpreted as a north plunging and steeply dipping sulphide lens with a rectangular shape consistent with a lava channel morphology as distinct from a more extensive interflow sediment.

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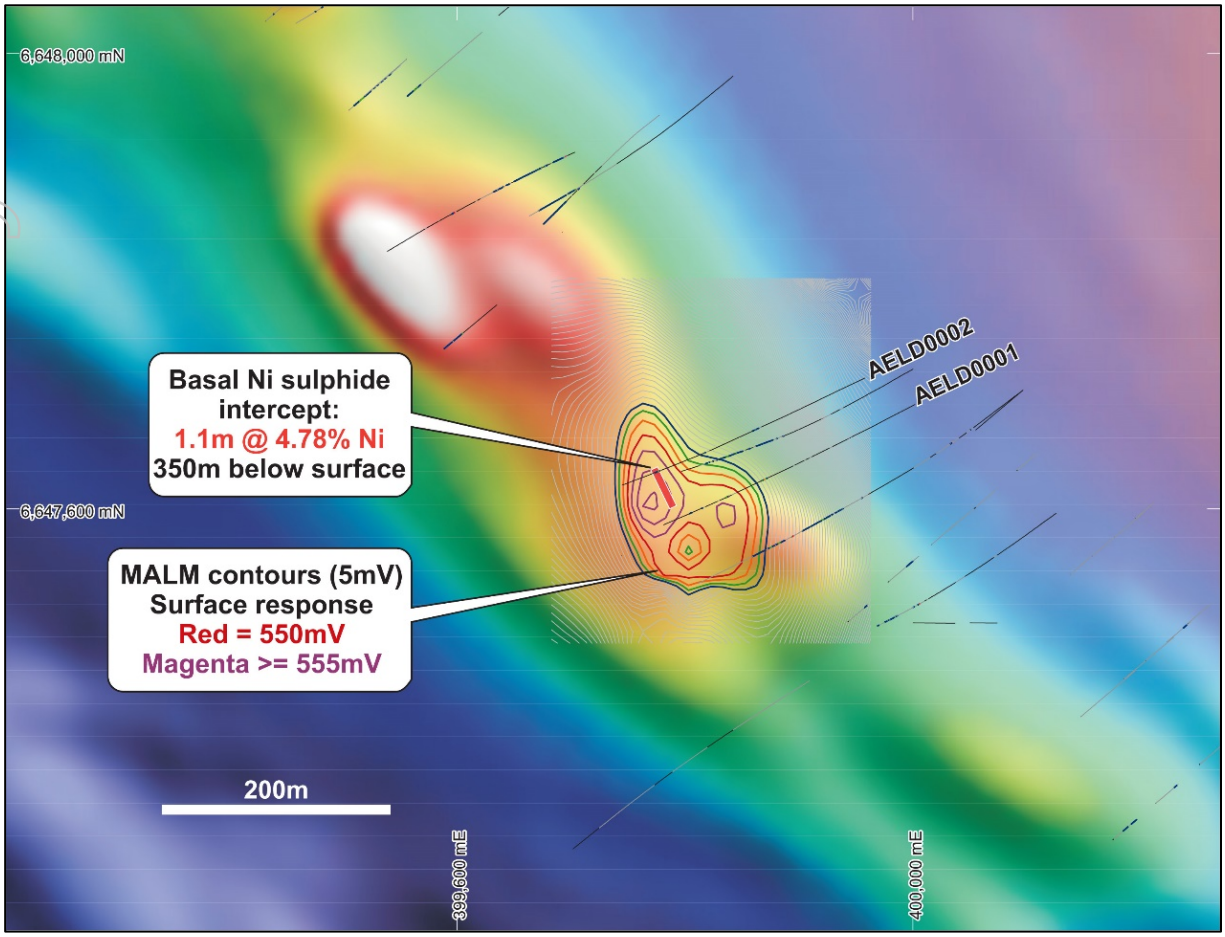

Figure 7: MALM survey contours over drillhole traces and aeromagnetic image background. The peak of the MALM contours occurs in the up-dip position of the nickel sulphide intercept in AELD0002, suggesting up-plunge continuity of the horizon. MGA Zone 51 projection.

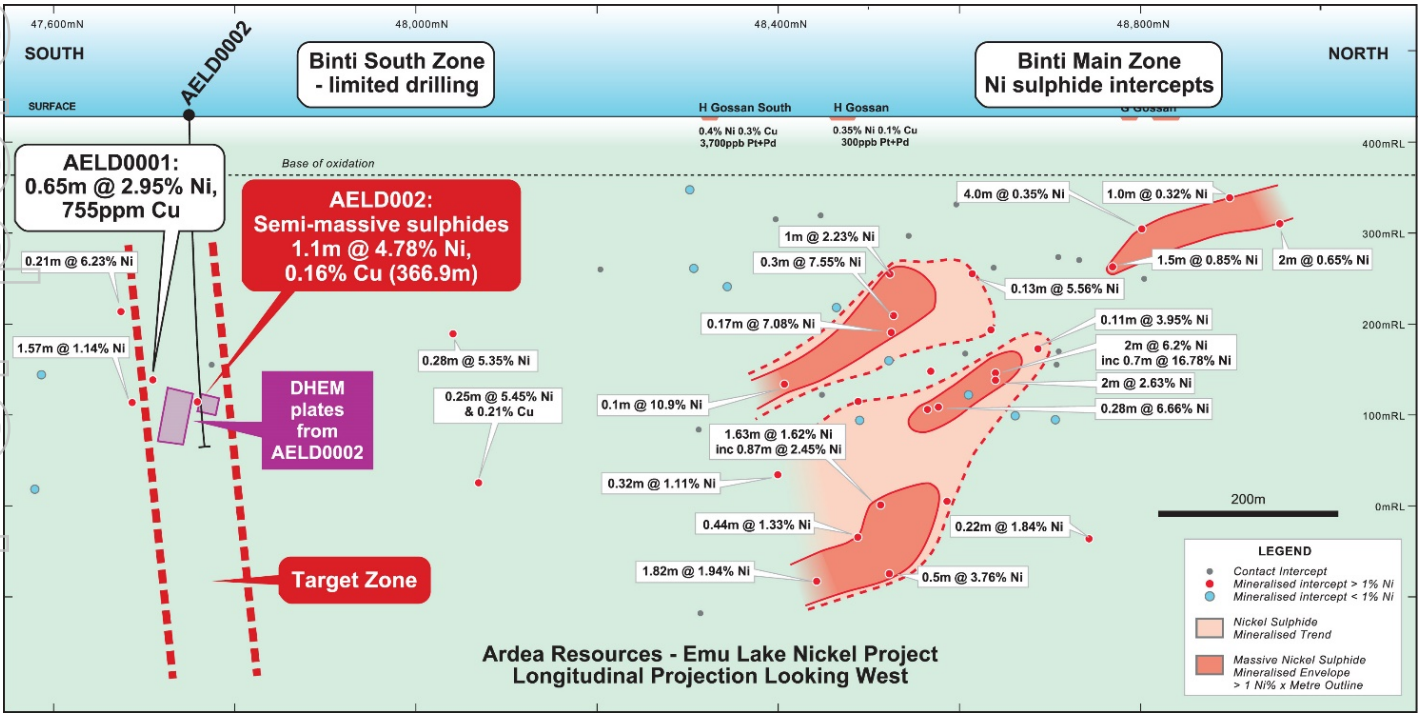

Figure 8: Emu Lake long section looking west showing new DHEM conductor to the north of AELD0001 and recently completed AELD0002.

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As shown in Figure 9, the stratigraphy is dipping steeply east and has been slightly overturned with the way-up to the west. The MALM anomaly at surface is indicating potential for the sulphide horizon to project to within approximately 150m of surface. Drilling will be planned to test this up-dip position once a suitable RC rig is available.

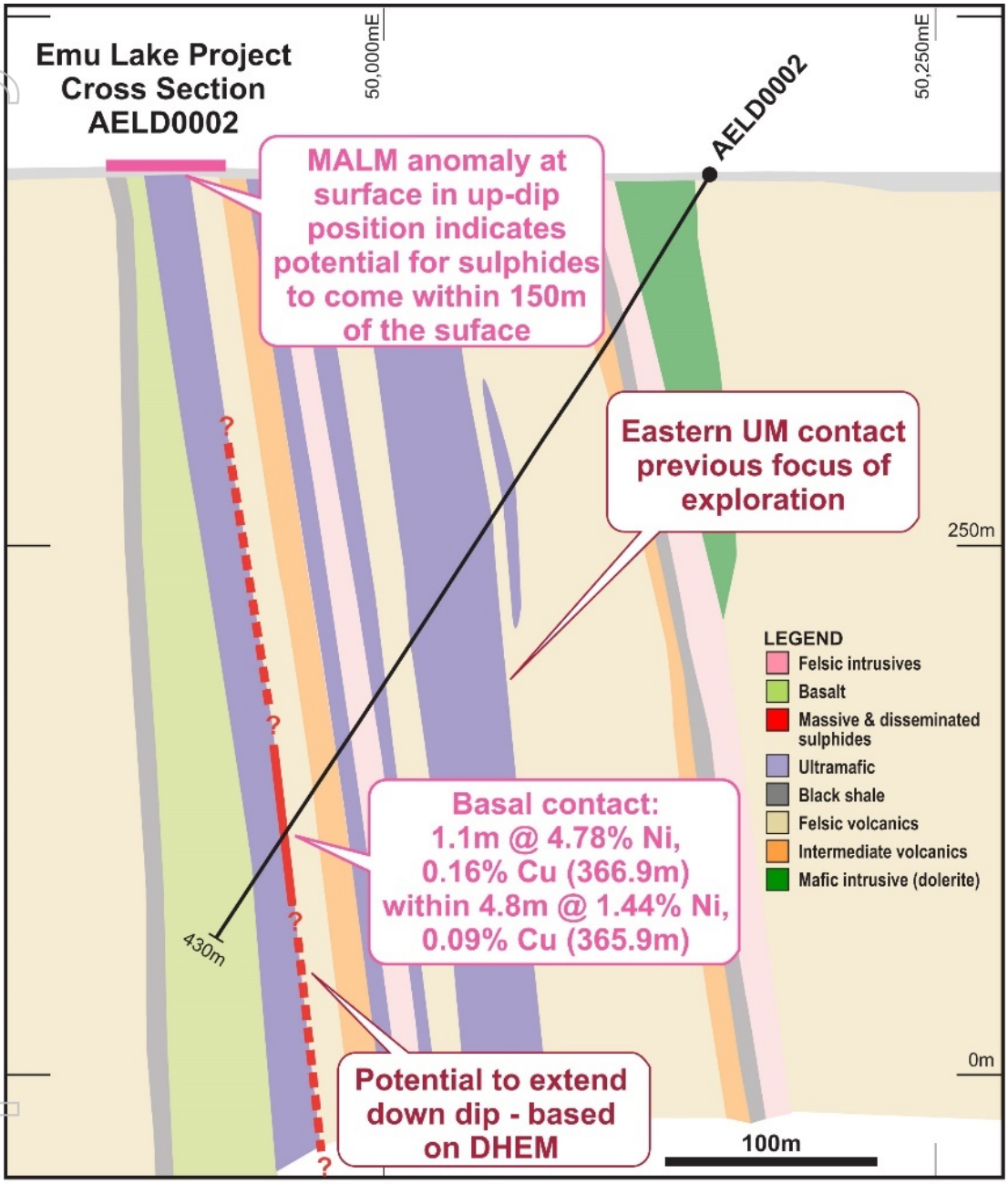

Figure 9: Emu Lake cross section looking north showing trace of drill hole, AELD0002, and interpreted geology with the new nickel sulphide zone on the western ultramafic unit. The MALM anomaly at surface indicates potential for the nickel sulphide horizon to extend to approximately 150m of the surface.

MLEM Surveys

Two anomalies associated with recent surface moving loop electromagnetic (**MLEM**) surveys are being followed up on the Eastern Ultramafic unit at Kalpini (see Figure 10 for location). These anomalies have been geophysically modelled as relatively short strike length conductive plates directly west of the nickel laterite drilling where little surface data exists.

The southern anomaly is associated with a strong copper anomaly in the nickel laterite drilling in this area with results up to 0.13% copper over 2m in two drillholes, 80m apart along strike. Other nickel sulphide targets in the broader Kalpini area are also shown in Figure 10 and highlight the large number of targets and prospectivity of the Kalpini Project.

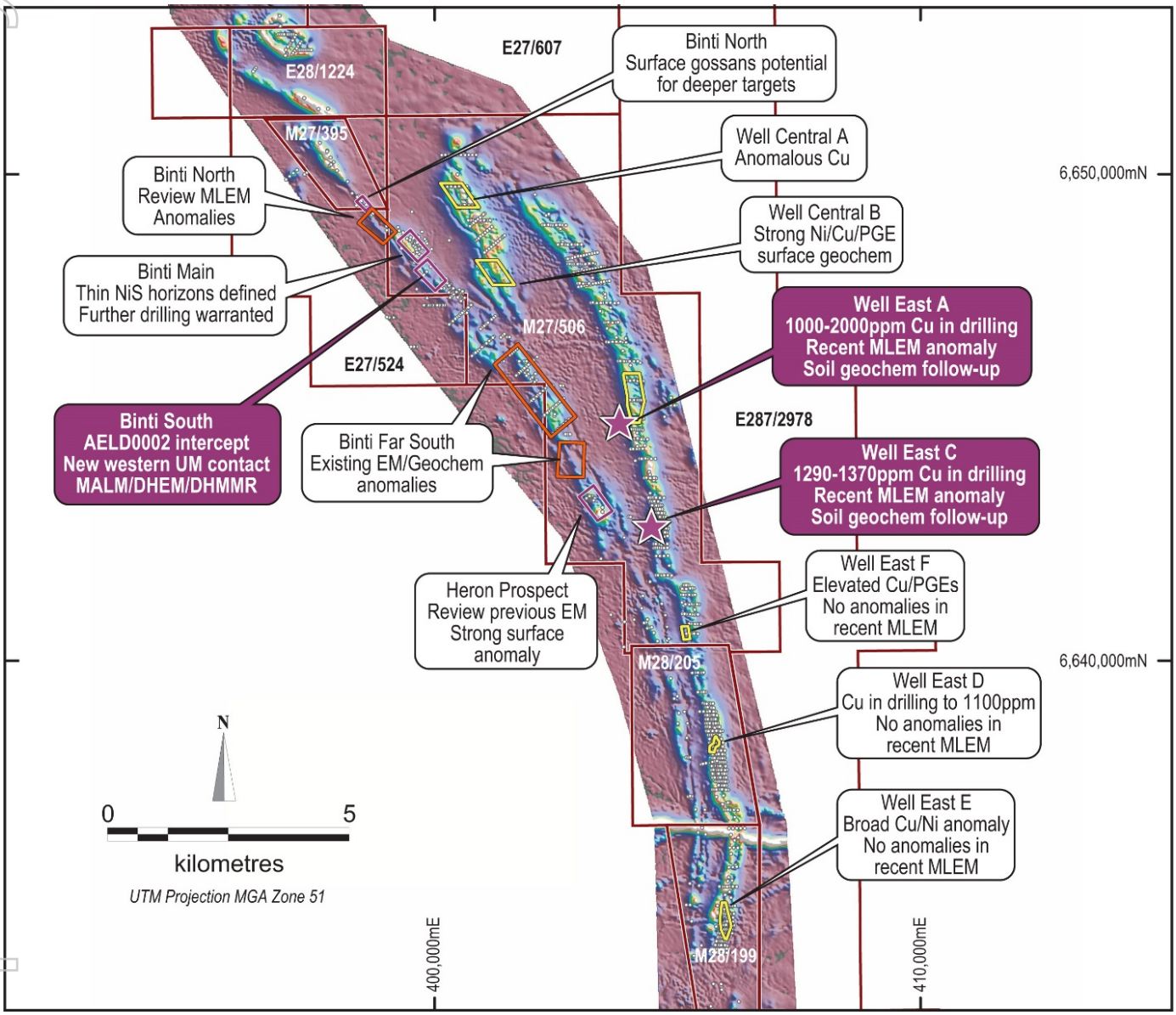

Figure 10: Nickel sulphide targets in the Emu Lake and broader Kalpini project area. Showing the two recent MLEM targets on the Eastern Ultramafic and the location of the recent significant nickel sulphide drilling intercept (AELD0002). MGA Zone 51 projection.

Bardoc Tectonic Zone Nickel Sulphide

Exploration to unlock the nickel sulphide potential throughout Ardea's ground holding in the Bardoc Tectonic Zone (**BTZ**) continued during the Quarter with the assistance of a dedicated nickel sulphide expert. The Company also accelerated research work with the CSIRO to further assess the ultramafic sequences of the KNP, where nickel sulphide mineralisation, if it exists, would be located in undrilled fresh rock beneath the lateritic deposits. Using various geochemical markers and re-evaluating historical geophysical data, new targets are being developed for potential drill testing.

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Highway Nickel Prospect

The Highway Prospect, located 110km north of Kalgoorlie Boulder and 30km north of Goongarrie (Figure 2 and 5), is within a wholly owned and granted mining lease which hosts the Company's Highway nickel laterite resource (92Mt at 0.69% nickel and 0.038% cobalt, for 633kt nickel and 35kt cobalt)*.

Magmatic nickel sulphide has been identified in historic RC drilling near the basal contact of the Walter Williams Formation (**WWF**). A MLEM survey in 2009 identified two subtle conductors along strike from the disseminated sulphide occurrence, however, drilling did not intersect massive sulphides. The fact that this portion of the Walter Williams Formation is fertile for nickel sulphides is significant with little or no focus on such occurrences over the last 20 years. It also raises the possibility of nickel sulphide occurrences beneath the Goongarrie tenements to the south.

During the Quarter, RC hole AHIR0001 was completed to a depth of 259m testing an IP-chargeability anomaly near the basal (western) contact of the WWF near where historical CRA drilling recorded disseminated sulphides in the ultramafic units of the WWF. Assay results are awaited.

The prize of finding economic nickel sulphides in the WWF is significant, as it immediately opens up a large new search space, of which Ardea is overwhelmingly the major ground holder, controlling 40km of cumulative strike.

Ghost Rocks Project

The Ghost Rocks Project, located 140km north of Kalgoorlie and 60km north of Goongarrie (Figure 5) contains a mixed package of mafic and ultramafic stratigraphy associated with the WWF and hosts Ardea's Ghost Rocks laterite resource (47.3Mt at 0.66% nickel and 0.042% cobalt, for 312.9kt nickel and 19.9kt cobalt)†. It was extensively prospected for nickel and copper sulphide deposits in the late 1960s and early 1970s where copper gossan zones were mapped in the mafic/ultramafic package. Drilling of these gossan zones by Newmont in the early 1970s returned a best result in the oxide zone of 3.3m (10 foot) grading 2.14% copper to end of hole from 12m depth.

Work by Heron Resources in 2008/09 identified several MLEM anomalies that were drilled and intersected broad zones of "cloud nickel sulphides" in ultramafic rocks and copper assays up to 0.53% over 2m in a differentiated mafic unit. No follow-up was completed at the time.

During the June Quarter, re-assessing historic MLEM anomalies and the effectiveness of past drilling has continued, along with the completion of a modern MLEM survey. A compelling MLEM conductor has been defined which is associated with a copper anomaly in a historic Heron RC hole (GRRC0215). Deepening this hole would test this anomaly and this target has been added to the exploration target pipeline and will be considered for inclusion in future exploration drilling programs.

Black Range Project

The Black Range Project is located 65km north-west of Kalgoorlie Boulder and contains a 5km zone of the Ora Banda Sill mafic/ultramafic complex enriched in nickel, cobalt, copper, scandium and PGE metals (Figures 5). The Ardea Black Range resource comprises 19.2Mt at 0.68% nickel and 0.09% cobalt, for 130.7kt nickel and 17.8kt cobalt, as well as 8.70Mt at 65.6g/t scandium for 570,000kg scandium, and 6.55Mt at 0.33g/t Pt and 0.21g/t Pd for 70,300oz platinum and 44,000oz palladium‡.

Past Ardea drilling programs have delineated a zoned lateritic distribution of nickel, cobalt, copper, scandium and PGE metals, including:

- ABR0001/4-20m 16m at 0.24% Ni, 0.11% Cu, 0.29g/t Pd, 0.38g/t Pt
- ABR0016/2-18m 16m at 0.45% Ni, 0.17% Cu, 0.15g/t Pd, 0.26g/t Pt
- ABR0021/4-24m 20m at 0.18% Ni, 0.09% Cu, 0.29g/t Pd, 0.36g/t Pt

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* Ardea ASX Release 16 June 2021.
† Ardea Annual Report 2019 (24 October 2019)
‡ Ardea ASX Release "Black Range cobalt, nickel, scandium and platinum/palladium resources" (31 October 2017).

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This geochemical signature is consistent with a sulphidic nickel metal source and is different to the usual KNP nickel laterite geochemistry. The target zone is located at a specific rock unit contact within the Ora Banda Sill layered mafic complex (**LMC**) with potential for Nova or Julimar style intrusion-related nickel-copper-PGE sulphides.

During the Quarter, RC drillhole ABR0028 was completed to 271m testing coincident IP-chargeability and surface EM anomalies. The hole intersected the middle portion of the Ora Banda Sill with mafic intrusive rocks (gabbro/dolerite) to 90 metres followed by mixed peridotite and pyroxenite intrusive rocks with traces of pyritic sulphides to 271m. Traces of disseminated pyritic sulphides were observed through much of the hole, but this is not considered sufficient to explain the IP anomaly. The hole steepened from -63° to -69° when it was expected to lift and this resulted in it passing to one edge of the anomaly, rather than in the centre. The hole has been sampled with samples despatched in early June and results are awaited.

Jump-Up Dam – Nickel Sulphide Target

The Jump-Up Dam Project, located 150km northeast of Kalgoorlie Boulder and 96km east northeast of Goongarrie, is wholly owned by Ardea. It contains a nickel laterite resource of 64Mt at 0.75% nickel and 0.04% cobalt for 479kt nickel and 26.1kt cobalt associated with an Archaean ultramafic complex. Drilling on the eastern side of the ultramafic has defined a 400m long, north-south trending, zone of copper-nickel enrichment in the regolith profile and in places extending into the upper saprolite. The anomalous zone includes an intercept of 18m at 0.10% copper and 0.52% nickel from 18m to end of hole in hole JDRC0127. Interestingly, gold is also anomalous in this intercept – up to 0.21g/t Au over 2m.

To further follow-up on this strong geochemical anomaly, a MLEM survey was completed during the Quarter over the eastern margin of the ultramafic complex. No specific conductors were identified in this survey, however, a broad increase in conductivity was recorded across the ultramafic contact. Further work will be undertaken to assess these results and determine the potential for disseminated nickel/copper sulphides in this area.

Ardea Gold Strategy

Ardea's focus and priority remains the KNP, with no dedicated gold exploration being undertaken unless it is a function of drilling potential site infrastructure locations.

KNP nickel laterite deposits are localised upon crustal-scale Tectonic Zones (**TZ**) (Figure 11), which structures control evolving geological events from initial olivine komatiite rift volcanism (with nickel sulphide potential), epiclastic sedimentation, Layered Mafic Complex (dolerite) emplacement (with PGE potential), late-stage alkaline diorite intrusion (with REE potential) and finally through to the late-stage crustal convective cells responsible for orogenic gold deposition.

The TZs are exceptional greenfields gold targets, especially when associated with lakes (recessive weathering associated with large-scale alteration). The Bardoc Tectonic Zone (**BTZ**) is the northern strike continuation of the Boulder Lefroy TZ, which hosts major gold camps at Kalgoorlie-Boulder (>80Moz gold), New Celebration (>3.2Moz) and St Ives (>6.5Moz).

Despite the obvious gold pedigree of Ardea's tenure, during its first 23 years, the KNP has been solely evaluated as a nickel-cobalt laterite project, with ownership and control successively by Heron Resources and then Vale Inco (PFS 2009). Until recently by Ardea, there had been no systematic modern gold exploration.

With Ardea's acquisition of the project in 2017, for the first time in two decades, systematic Critical Mineral and gold evaluation commenced, through Ardea's gold and multi-element pathfinder assay suite and detailed geophysical data interpretation to help "see" through the cover of lake sediments and blanket laterite.

In terms of developing a gold exploration model, Ardea's approach has highlighted the key presence of intense deformation, Layered Mafic Complex host rocks, alkaline diorite intrusives and late stage epiclastic basins within KNP tenure. These features are all key criteria for significant gold mineralisation within Kalgoorlie-Boulder's Eastern Goldfields gold province.

Ardea has a systematic evaluation matrix and has defined well over 100 gold targets. Where synergies exist with Ardea's KNP development plans, such as infrastructure sterilisation drilling, such targets are prioritised. The immediate gold focus for Ardea is the planned Kalgoorlie-Boulder focussed gold IPO spin-out, **KalGold**, with planned In-Specie share distribution, at nil cost to shareholders.

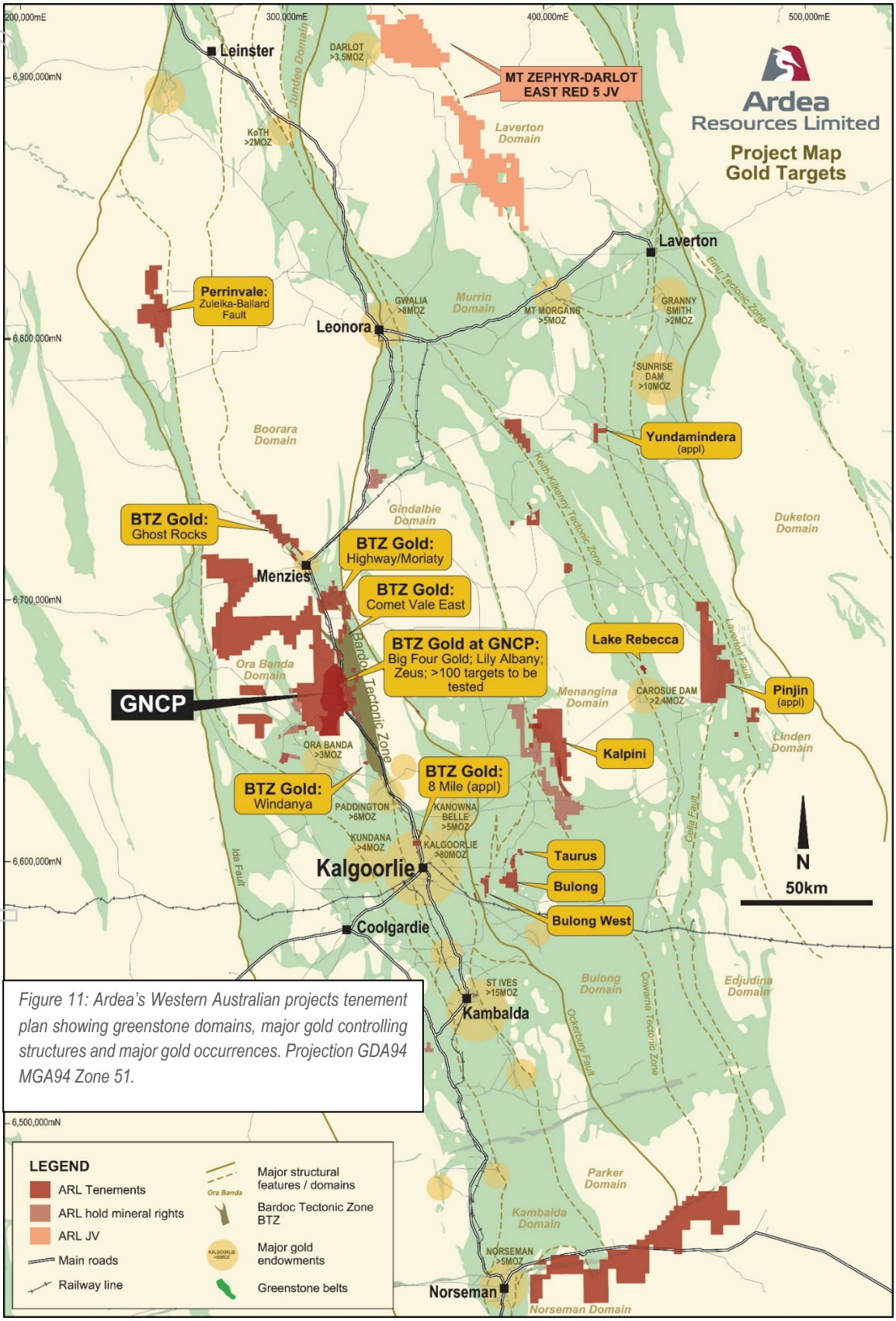

Figure 11: Ardea's Western Australian projects tenement plan showing greenstone domains, major gold controlling structures and major gold occurrences. Projection GDA94 MGA94 Zone 51.

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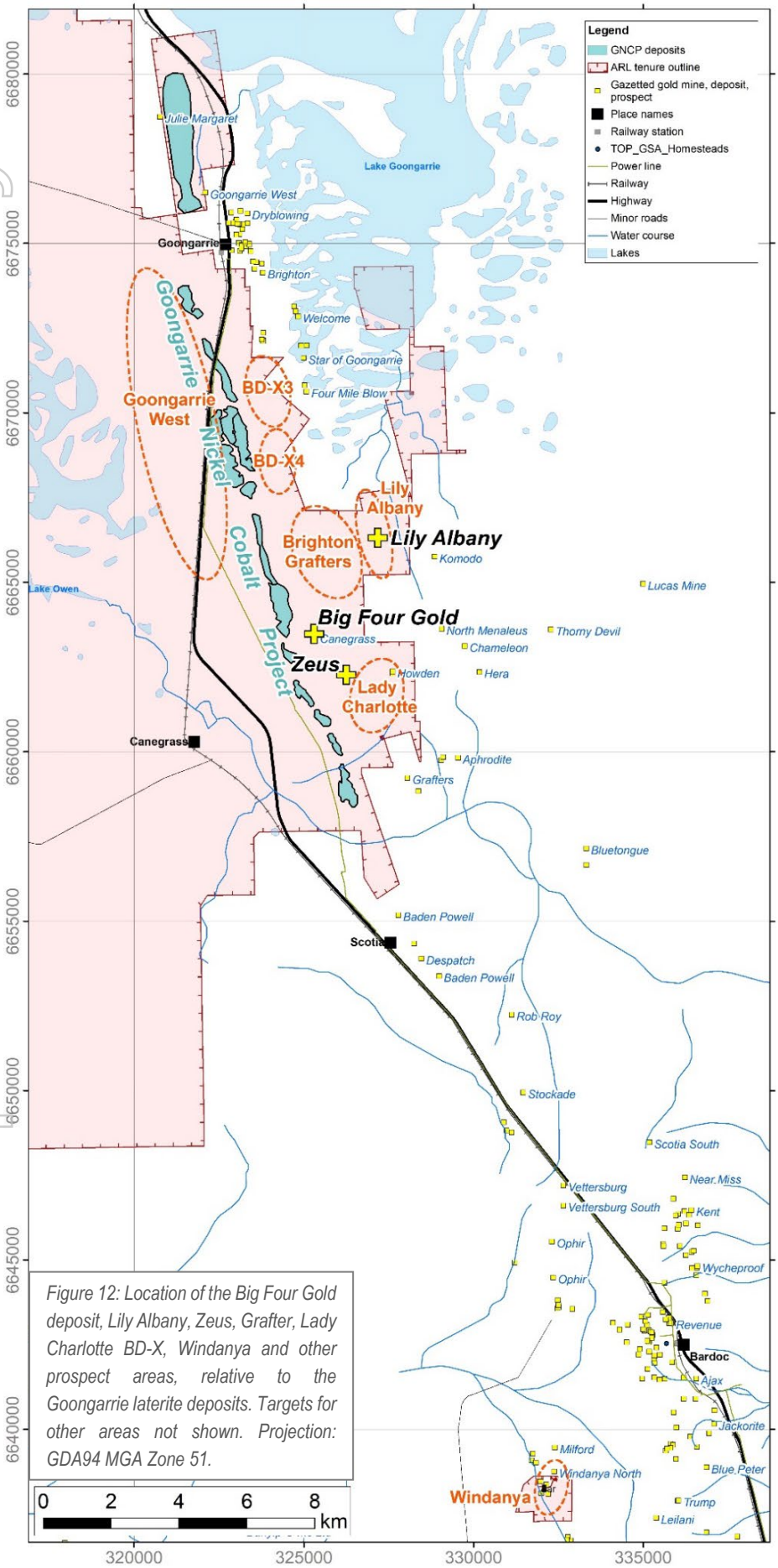

Figure 12: Location of the Big Four Gold deposit, Lily Albany, Zeus, Grafter, Lady Charlotte BD-X, Windanya and other prospect areas, relative to the Goongarrie laterite deposits. Targets for other areas not shown. Projection: GDA94 MGA Zone 51.

Bardoc Tectonic Zone Gold

The BTZ is a major, gold-fertile, crustal-scale structure that transects the Kalgoorlie Terrane of the Eastern Goldfields. The regional shear/fault system strikes from Paddington in the south to northwest of Ghost Rocks in the north and extends over an approximate 125km total strike length. Approximately 65km of this regionally significant structural zone occurs within Ardea tenure. Ardea's Goongarrie is unique among the world's lateritic nickel-cobalt deposits in that it has developed upon ultramafic rocks that are within and are a part of a major, crustal-scale gold-mineralised structure.

Exploration of the Goongarrie gold camp has the advantage of leveraging off the extensive but largely ineffective (for gold) Goongarrie historic drill programs and the infrastructure rich location.

Gold exploration at Goongarrie is more challenging relative to more "traditional" outcropping areas due to the deep development of the laterite profile that is host to the extensive nickel-cobalt laterite deposits. The most effective exploration method at Goongarrie is a combined structural-geochemical target model, where the structural data is derived from interpretation of the Ardea magnetic datasets, and the geochemical data is derived from Goongarrie drill hole assay suites (which currently is only very sparse in terms of bottom-of-hole fresh rock samples). This exploration strategy from Ardea has been demonstrated to be effective as shown by the 2020 gold discoveries at Lily Albany and Zeus and emerging discoveries at Lady Charlotte.

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Aphrodite North Gold Line and Lily Albany Gold Discovery

The Aphrodite North area is located approximately 80km north of the City of Kalgoorlie-Boulder and 6km north along strike of the 1.7Moz Aphrodite gold deposit (BDC, ASX release 25 June 2020) (Figure 11 and 12). The area is entirely covered by transported material and thus exhibits no surface anomalism. The target structure extends in a north-northwest orientation throughout Ardea's granted Mining Lease, M29/426.

Lily Albany is the first gold discovery in the Aphrodite North area by any company and was confirmed by Ardea during the December Quarter 2020. It is located 3km east of Ardea's 25km long line of nickel-cobalt laterite deposits that define Goongarrie (Figure 13). Lily Albany is a proof-of-concept discovery that resoundingly illustrates the gold fertility of the BTZ within Ardea's tenure.

During the Quarter, assay results were received from the 15 resource definition RC drill holes completed for 2,122m and two diamond drill holes completed for 365m during the March Quarter 2021 (ASX release 22 June 2021). Highlights from this drilling include:

- From diamond drilling at the buried **Lily Albany** discovery (ALAD0002):
  - **6.8m at 1.48g/t Au** from 51m including **3.8m at 2.28g/t Au** from 51m was intercepted in strongly oxidised material
  - **9m at 1.53g/t from** 170m including **3m at 3.79g/t Au** from 170m was intercepted in fresh rock
- Shallow RC drilling at **Lily Albany** has extended the footprint of oxidised gold mineralisation beneath transported cover:
  - AANR0029: **4m at 3.22g/t Au** from 40m
    including **2m at 5.81g/t Au** from 42m
    and **2m at 3.22g/t Au from 66m**
  - AANR0032: **10m at 1.78g/t Au** from 108m
    including **6m at 2.78g/t Au** from 112m

These results continue to build the Lily Albany story. The RC program aimed to extend gold mineralisation in the oxidised zone, whilst the diamond drilling aimed to define controls on the primary gold mineralisation (Figure 13 and 14).

Figure 13: Assays shown over part of the main mineralised zone at Lily Albany, with assay results quoted on a metre by metre basis (e.g. 171-172m recorded 4.62g/t Au) showing strong alteration and shearing of the host Layered Mafic Complex dolerite, with intense quartz-sericite-pyrite-chalcopyrite alteration evident (ALAD0002, tray #31, 170.7 – 175.35m).

These results further confirm continuity of the extensive saprolitic gold mineralisation with gold mineralisation open in every direction.

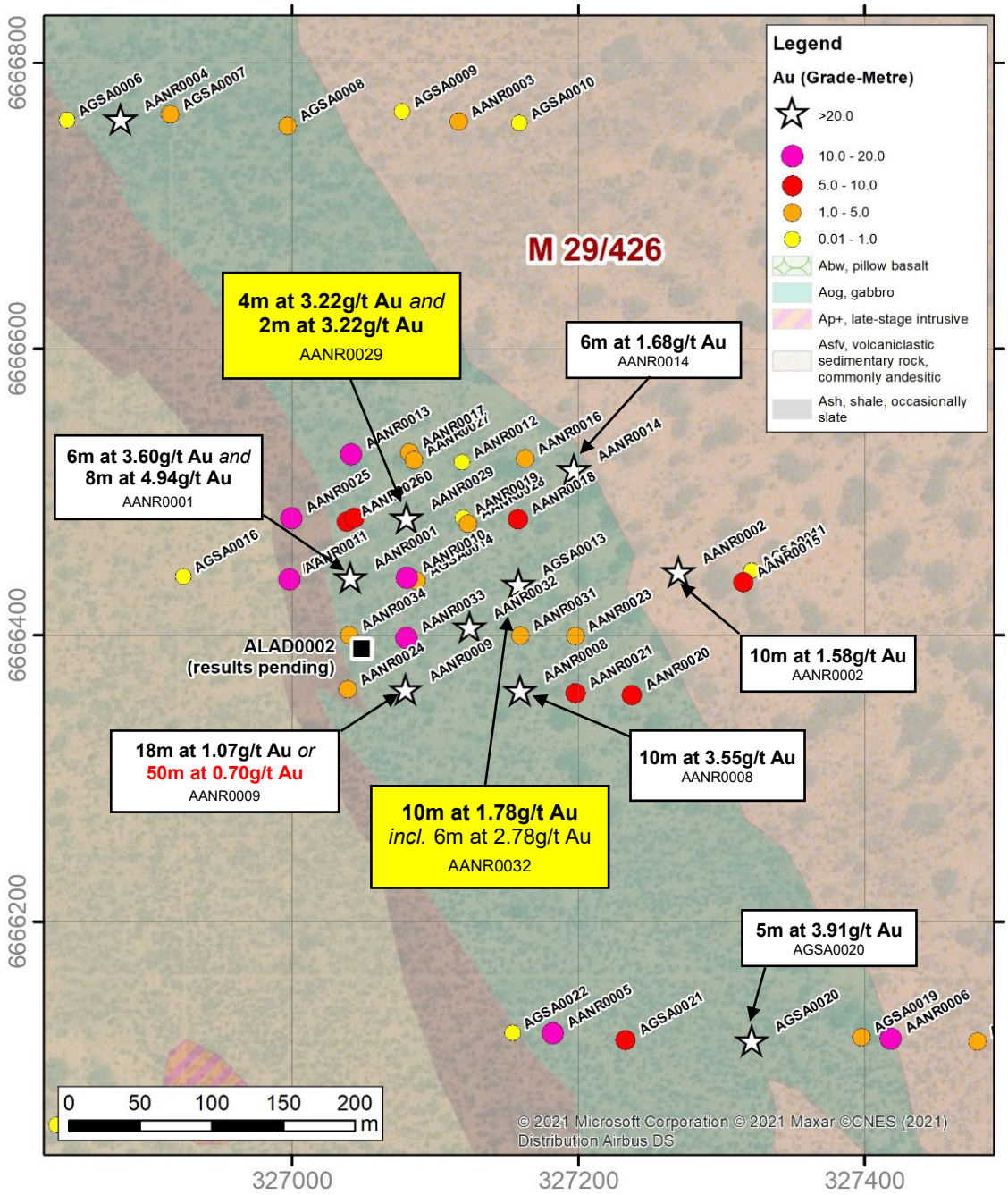

Figure 14: Grade metre plot of gold contents on holes at Lily Albany, on their collar positions. Most holes drilled at -60° to the east. Projection: GDA94 MGA Zone 51.

Zeus gold prospect

Zeus is located approximately 70km northwest of Kalgoorlie-Boulder (Figure 12). During the June 2021 Quarter assay results were received and interpreted from the 19 holes drilled for 1,150m during the March 2021 Quarter. Highlights include (ASX release 22 June 2021):

ABFR0321	**8m at 2.57g/t Au** from 2m
	including **4m at 4.35g/t Au** from 4m
and	**2m at 1.83g/t Au** from 24m
ABFR0317	**2m at 1.56g/t Au** from 48m
ABFR0318	**2m at 1.22g/t Au** from 124m

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Importantly, the result from ABFR0321, which is from only 2m depth, below shallow surface cover, represents Ardea's second best intercept at Zeus. Notable previous intercepts from the first program (ASX release, 13 August 2020) include:

ABFR0303 **10m at 12.97g/t Au** from 42m
including **4m at 28.25g/t Au** from 44m

ABFR0304 **6m at 2.07g/t Au** from 68m
including 2m at 2.41g/t Au from 68m
and 2m at 2.52g/t Au from 72m

Importantly, these high-grade intercepts all cluster within 40m of one another. In addition to the near-surface intercept, deeper intervals at ABFR0317 and 0318 may represent the down-plunge extent of the mineralised zone.

Grafters and Lady Charlotte Gold Prospects

This area is located approximately 70km northwest of Kalgoorlie-Boulder (Figure 12). During the March 2021 Quarter, 16 RC holes were drilled for 1,344m to test a variety of potential infrastructure, geochemical, structural and geophysical targets. During the June 2021 Quarter, several stand-out gold intercepts were returned from the most recent drilling at Lady Charlotte and include (ASX release 26 May 2021):

ABFR0354 **4m at 1.12g/t Au from 50m**

ABFR0360 **12m at 5.20g/t Au from 42m**
including **8m at 7.49g/t Au from 42m**

ABFR0361 **8m at 4.06g/t Au from 54m**
including **4m at 6.86g/t Au from 56m**

Mineralisation around these new intercepts is hosted by a Layered Mafic Complex with multiple shear zones apparent in RC drill chips. Mineralisation is open in every direction except the east. Ardea's in-house, high resolution structural models show intersections of several structures and orientations at Lady Charlotte, but it is not yet clear which of these specific structures provides the main gold mineralisation controls. Tightly spaced follow-up RC drilling has been planned to delimit the extent of gold mineralisation and the controls on its distribution and will be considered as part of future site infrastructure drilling programs.

Goongarrie West

Like the Brighton-Grafters trend, several distinct sites were selected for RC drilling and returned anomalism that is currently being interrogated. Further work at Goongarrie West (Figure 12) should utilise widely spaced lines of aircore drilling to define gold anomalism and ground water distributions.

The host mafic Missouri Basalt contains significant gold deposits 20km west at the Siberia gold mining centre, and 10km north along strike at the Comet Vale gold mining centre.

High water flows were intersected in several holes at Goongarrie West which are being analysed pursuant to the current water extraction licence applications with the State authority.

Additionally, the Goongarrie West area has been identified as a potential site for a rail spur line servicing the proposed plant site.

BD-X3 and BD-X4

The BD-X3 and BD-X4 targets are located south and along strike of the historic Goongarrie Gold Mining Centre immediately east of the KNP Goongarrie Hub proposed plant site in an area where the natural topography had been selected as a process water storage site and/or retention pond for water shed from the plant site (Figure 12).

The areas were targeted for gold assessment for several reasons, including:

- Their proximity east of the Pamela Jean and Patricia Anne nickel-cobalt-scandium laterite deposits which requires that the status of the ground be defined for infrastructure or mining purposes.
- The areas are located between 3km and 6km south directly along strike from the main Goongarrie Mining Centre, and less than 1km south of the southernmost workings at Duffer and Junction.
- The area is mostly covered by a mantle of transported material that has discouraged historic exploration.
- Analogous structures to those controlling gold mineralisation at Goongarrie are clearly defined in Ardea geophysical interpretations throughout the BD-X targets.

A first-pass aircore drill program was designed to test the weathered profile (to blade refusal), with Ardea's standard 4m composites collected. Initial results received during the June 2021 Quarter (ASX release 22 June 2021) are very promising and include:

AGSA0080	**4m at 1.99g/t Au** from 36m
AGSA0086	**4m at 4.21g/t Au** from 8m

Ardea has identified a particular set of structures in geophysical interpretations that are preferentially mineralised within mafic rocks (the above quoted intercepts) and show significant anomalism where the structures cross ultramafic rocks. These particular structures will be the targets for follow-up RC drill exploration efforts south along strike from Goongarrie.

Windanya Gold Prospect

Ardea's Windanya Prospect is located 50km northwest of the City of Kalgoorlie-Boulder and is a significant historical gold mining centre with town-site that was operational in the earliest 1900s (see Figure 12).

During the March 2021 Quarter Ardea's first diamond drill hole was completed to a depth of 862m, with up to 50% of the drilling costs to be refunded by the State Government as part of Ardea's successful Exploration Incentive Scheme application.

The hole was planned as a deep stratigraphic hole, targeting the down plunge extents of the Half Mile Reef and another 10 subparallel interpreted structures. Observations from the drill hole logging indicate that the regolith profile consists of a mottled zone leading into goethitic upper saprolite which transitions into a ferruginous saprolite and a green lower saprolite. Between 87m to 204m the rocks are heavily faulted. The faulting is generally comprised of large zones (up to 26m) of primarily clay only material with mylonitic zones either at the base or top of the fault. Often there is quartz veining within the clay zones with sericite and biotite mica within the veins and manganese staining. Multiple mafic units have been intersected, along with zones of disseminated sulphide and quartz veining. Assay results received during the June 2021 Quarter have not defined any significant gold mineralisation with path finder elements currently being assessed.

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3. CORPORATE

Gold Spin-out – Kalgoorlie Gold Mining Limited

Ardea is close to finalising the structure of its planned Kalgoorlie-focussed gold spin-out, Kalgoorlie Gold Mining Limited (**KalGold**).

The spin-out process is on schedule to be formalised during the September 2021 Quarter at which time an announcement will be made in respect of an Extraordinary General Meeting for Ardea Shareholder approval and setting a Record Date for eligibility for In-Specie share distribution at nil cost to Ardea Shareholders.

The area covered by Ardea's tenements is considered highly prospective for gold and Critical Mineral mineralisation and is under explored for gold. Where Ardea has defined nickel laterite resources, KalGold will acquire Gold Rights and Ardea will retain Non-gold Rights. Elsewhere, KalGold will acquire All Mineral Rights.

The KalGold Assets are in all cases large contiguous tenement groups which are located on domain boundary Tectonic Zone structures, being the prime location for large scale gold deposits within the Eastern Goldfields province in the Kalgoorlie region. Additional prospectivity guides are Layered Mafic Complex host rocks, alkaline diorite intrusives and late stage epiclastic basins, indications of which are manifest within Ardea's comprehensive historic drilling multi-element data bases. The Bulong transaction completed during the June 2021 Quarter (ASX release 7 June 2021) has consolidated an outstanding lead project for KalGold, to help ensure the optimum outcome for Ardea Shareholders.

Strategy

The driving Company priority is KNP nickel-cobalt-scandium laterite project development to produce sustainable and ethical battery minerals for the LIB supply chain to further advance the transition to a low carbon future. Complementary nickel sulphide, Critical Minerals (notably REE) and gold (for short-term cash flow and long-term infrastructure sites) development opportunities will also be considered. The starter project is the Goongarrie Hub to capitalise on the premium goethite ore type and infrastructure-rich location.

Other opportunities to realise value continue to be pursued, notably the planned KalGold spin-out.

Finance

The Company's cash position was $5.7M at Quarter end. On 28 June 2021 Ardea announced a share placement at $0.55 per share to sophisticated investor and professional clients of Petra Capital Pty Limited (Petra Capital) to raise A$5.7 million before costs. The placement was very well supported and placed at a premium to the last closing price of $0.535 per share on Friday 25 June 2021. Ardea funds available by 5 July 2021, total **$11M**.

Issued capital as at, 30 June 2021 was 127,670,582 shares, with 4,236,000 Performance Rights on issue. Following the Petra Capital placement (ASX releases 28 June and 6 July 2021) an additional 10,363,637 shares were issued and as of 6 July 2021 issued capital was 138,034,219 shares.

Summary of Expenditures for the Quarter

During the Quarter, the Company incurred a total net expenditure from operating activities of $985k. This was made up of $1,653k expended on exploration and evaluation activities, $232k on development activities, $119k on staff costs and $149k on administrative and corporate costs with the balance on minor items. Funds received during the Quarter included interest of $7k, government grants and tax incentives of $121k, and a $1,040k R&D refund for the 2020 financial year.

Included in these costs were payments made to Directors of the entity and their associates. These payments were Directors Salaries and Superannuation payments and Consulting fees of $224k and rental for the Company's West Kalgoorlie operations office of $19k for the Quarter. All payments were made on an arm's length basis.

Further details on Quarterly expenditures are included in the Appendix 5B – Quarterly Cashflow Report attached to this Quarterly Report.

4. LOOKING FORWARD

During the September 2021 Quarter, Ardea will focus upon the following programs.

Kalgoorlie Nickel Project

Ardea is well funded and will continue to work with industry groups and State and Federal Government to ensure project development is predicated on ensuring sustainable and ethical standards.

Strategic Partner Process

- Continue active discussions and accelerate the Strategic Partner search process in light of the 16 June 2021 KNP resource update which has reiterated the strategic value and global significance of the KNP.
- Continue engagement with groups such as the CSIRO, Australian Government and industry-backed FBICRC and Critical Minerals Facilitation Office.

Resource Upgrades

Continue the Kalpini data review and resource update and then commence Siberia North, Bulong, Lake Rebecca, Yerilla and other satellite nickel-cobalt prospects within hauling distance of the Goongarrie Hub to define the optimum mine plan which includes maximising HPAL nickel-cobalt feed grades and mineralised neutraliser utilisation aimed at minimising carbon emissions.

Flowsheet Research and Development

Continue evaluating additional by-product credit potential from the HPAL pregnant liquor solution to supplement the nickel-cobalt-scandium resource already defined. Complete additional diamond drilling, in-pit sourced neutraliser, scandium and other Critical Minerals, including REE testwork with outputs used to optimise the flow sheet that is carried forward into the DFS. The core focus is minimising the project development footprint and carbon emissions and adhering to Western Australia's world-class safety, health, environmental and operating standards which ensures sustainable and ethical production.

Of particular importance is current carbon neutral studies, using drill core material from the current Highway core drilling.

KNP Feasibility

Continue the Gap Analysis Study being undertaken by Wood and incorporate the learnings from the metallurgical drilling, mineralised neutraliser and Critical Mineral testwork to refine the DFS scope of work.

Complete the hydrogeology water bore drilling to support the abstraction licence applications.

WA Nickel Sulphide, Critical Mineral and Gold Projects

Review of geological settings favourable for Critical Minerals, nickel sulphide and gold will continue. This work will continue to be cost effectively undertaken using Ardea's extensive database, sample drill pulps available for re-assay at the West Kalgoorlie office and detailed geophysical datasets.

Review and interpret the results of KNP drilling and geophysical exploration programs completed by Ardea during H1 2021 and where relevant, historic data. These results will be integrated into the Company target ranking system to ensure that the highest ranked targets continue to be prioritised. With multiple nickel, Critical Mineral and gold targets defined, the exploration and development pipeline continue to be replenished with the aim of making a significant discovery and quantifying by-product revenue streams to create additional Company value.

Opportunities also continue to be assessed to monetise selected gold assets that will not be part of the KalGold spin-out.

Investor Relations

During the Quarter Ardea presented at the 121 EMEA on-line event, AMEC Investor Day in Perth and also attended the Goldfields-Esperance Development Commission, Meet the Suppliers Expo on 16 June 2021 at the Goldfields Arts Centre in Kalgoorlie.

This announcement is authorised for release by the Board of Ardea Resources Limited.

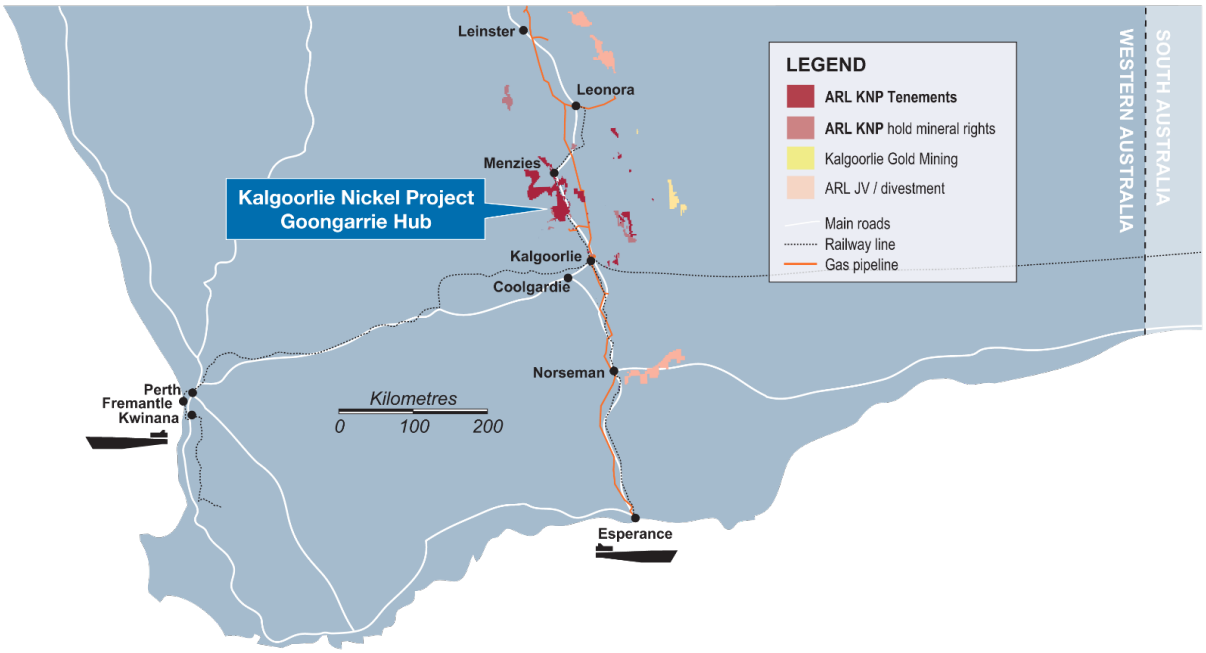
For further information regarding Ardea, please visit https://ardearesources.com.au/ or contact:

Andrew Penkethman
Managing Director and Chief Executive Officer
Tel +61 8 6244 5136

About Ardea Resources

Ardea Resources Limited (ASX:ARL) is an ASX-listed resources company, with a portfolio of 100% controlled West Australian-based projects, focussed on:

- Development of the Kalgoorlie Nickel Project (**KNP**) and its sub-set the Goongarrie Hub, a globally significant series of nickel-cobalt and Critical Mineral deposits which host the largest nickel-cobalt resource in the developed world at **830Mt at 0.71% nickel and 0.046% cobalt for 5.9Mt of contained nickel and 380kt of contained cobalt** (ARL ASX announcement 16 June 2021) located in a jurisdiction with exemplary ESG credentials.
- Advanced-stage exploration at compelling nickel sulphide, Critical Minerals, and gold targets within the KNP Eastern Goldfields world-class nickel-gold province, with all exploration targets complementing the KNP nickel development strategy.



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COMPLIANCE STATEMENT (JORC 2012)

A competent person's statement for the purposes of Listing Rule 5.22 has previously been announced by the Company for:

1. *Kalgoorlie Nickel Project on 21 October 2013 and 31 July 2014, October 2016, 2016 Heron Resources Annual Report and 6 January 2017.*
2. *KNP Cobalt Zone Study on 7 August 2017, PFS 28 March 2018 and Expansion Study 24 July 2018.*
3. *Goongarrie Nickel Cobalt Project, Supplementary Prospectuses 10 February 2017, Ardea Annual Report Nov 2017, ASX announcements 28 June 2017, 4 July 2017, 28 August 2017, 14 March 2018, 24 July 2018, 8 October 2018.*
4. *Ardea Resources Prospectus November 2016, Ardea Supplementary Prospectuses 6 January 2017, ASX announcements 9 March 2017, 16 March 2017, 26 April 2017.*
5. *Ardea Annual Report 2019, 24 October 2019.*
6. *Maiden Resource for Big Four Gold Project, WA, 14 May 2020.*
7. *Significant gold exploration results from new target at Goongarrie, 26 June 2020.*
8. *CSIRO research project commences to define gold behaviour within the critical mineral deposits of the Goongarrie Nickel Cobalt Project, 12 August 2020.*
9. *Significant gold in first RC drilling at Aphrodite North, 13 August 2020.*
10. *Ardea BTZ gold exploration success at Lady Charlotte, 24 August 2020.*
11. *Ardea Annual Report 2020, 29 September 2020.*
12. *Nickel Sulphide Targets within the Ardea Tenement Portfolio including KNP, 30 September 2020.*
13. *First metallurgical tests: very high gold recoveries from Big Four Gold deposit, 12 October 2020.*
14. *"Lily Albany" gold discovery confirmed by RC drilling at Aphrodite North, 29 October 2020.*
15. *High-grade, shallow gold discovery at Zeus, 10m at 13g/t gold, 9 November 2020.*
16. *Free Milling Gold confirmed for Lily Albany Discovery, 25 November 2020.*
17. *Ardea commences nickel sulphide core drilling at Emu Lake, 30 November 2020.*
18. *Drilling recommences at Zeus gold discovery, Lily Albany to follow, 15 December 2020.*
19. *Tenement Sale and Purchase Agreement signed with Moneghetti Minerals over Bedonia East, 9 February 2021.*
20. *GNCP High Grade Resource - 60 million tonne at 1.0% Nickel Sustainable Long-life Battery Metal Resource Confirmed, 15 February 2021.*
21. *Tenement Sale and Purchase Agreement signed with Larvotto Resources over Bedonia West, 26 February 2021.*
22. *Ardea confirms Nickel Sulphide Drill Target within the Kalgoorlie Nickel Project, 2 March 2021.*
23. *Half Year Accounts - December 2020, 5 March 2021.*
24. *Emu Lake Nickel Sulphide Target: Diamond Core Drilling Commences, 30 March 2021.*
25. *Compelling nickel-copper-platinoid sulphide drill target defined at Black Range, 19 April 2021.*
26. *Basal contact nickel sulphide intersected at Ardea's Emu Lake, 27 April 2021.*
27. *KNP Highway and Black Range - Nickel Sulphide Drilling Commences, 21 May 2021.*
28. *High-grade shallow gold intercepts continue at Lady Charlotte, Goongarrie BTZ, 26 May 2021.*
29. *CSIRO/Ardea research at Goongarrie BTZ – insights for nickel sulphide and gold targets, 27 May 2021.*
30. *Kalgoorlie Nickel Project – Feasibility Study Underway, 31 May 2021.*
31. *Kalgoorlie Nickel Project – Additional Tenure Purchase, 7 June 2021.*
32. *Semi-massive nickel sulphide intercept at Emu Lake, 10 June 2021.*
33. *Highway Nickel Deposit - Mineral Resource Estimate, 16 June 2021.*
34. *BTZ gold update – multiple gold intercepts adjoining the nickel-cobalt deposits, 22 June 2021.*
35. *Successful A$5.7M Capital Raising to Fund Kalgoorlie Nickel Project Feasibility Work, 28 June 2021.*
36. *Cleansing notice and Application for quotation of securities, 6 July 2021.*
37. *Nickel Sulphide Exploration Update - Emu Lake, 13 July 2021.*

The Company confirms that it is not aware of any new information or data that materially affects information included in previous announcements, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. All projects are subject to new work programs, notably drilling, metallurgy and JORC Code 2012 resource estimation as applicable.

The information in this report that relates to Exploration Results and Resource Estimates for the Kalgoorlie Nickel Project is based on information originally compiled by previous and current full-time employees of Heron Resources Limited and current full-time employees of Ardea Resources Limited. The Exploration Results, Resource Estimates and data collection processes have been reviewed, verified and re-interpreted by Mr Ian Buchhorn who is a Member of the Australasian Institute of Mining and Metallurgy and currently a director of Ardea Resources Limited. Mr Buchhorn has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the exploration activities undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buchhorn consents to the inclusion in this report of the matters based on his information in the form and context that it appears.

The exploration and industry benchmarking summaries are based on information reviewed by Dr Matthew Painter, who is a Member of the Australian Institute of Geoscientists. Dr Painter is a full-time employee of Ardea Resources Limited and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Painter has reviewed this press release and consents to the inclusion in this report of the information in the form and context in which it appears.

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ASX CHAPTER 5 COMPLIANCE AND PFS CAUTIONARY STATEMENT

The Company has concluded that it has a reasonable basis for providing the forward-looking statements and forecast financial information included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and all material assumptions, including the JORC modifying factors, upon which the forecast financial information is based are disclosed in this announcement. This announcement has been prepared in accordance with the JORC Code (2012) and the ASX Listing Rules.

The actual results could differ materially from a conclusion, forecast or projection in the forward-looking information. Certain material factors were applied in drawing a conclusion or making a forecast or projection as reflected in the forward-looking information.

The Goongarrie Nickel Cobalt Project is at the PFS phase and although reasonable care has been taken to ensure that the facts are accurate and/or that the opinions expressed are fair and reasonable, no reliance can be placed for any purpose whatsoever on the information contained in this document or on its completeness. Actual results and developments of projects and the scandium market development may differ materially from those expressed or implied by these forward-looking statements depending on a variety of factors.

A key conclusion of the PFS and Expansion Study, which are based on forward looking statements, is that the Goongarrie Nickel Cobalt Project is considered to have positive economic potential.

The Mineral Resource used for the PFS was classified under JORC 2012 Guidelines and announced by the Company on 14 March 2018. The cut-off grades adapted for the PFS and reported in Table 3.1 are the basis of the production target assumed for the PFS.

The Company believes it has a reasonable basis to expect to be able to fund and further develop the Goongarrie Nickel Cobalt Project. However, there is no certainty that the Company can raise funding when required.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING INFORMATION

This news release contains forward-looking statements and forward-looking information within the meaning of applicable Australian securities laws, which are based on expectations, estimates and projections as of the date of this news release.

This forward-looking information includes, or may be based upon, without limitation, estimates, forecasts and statements as to management's expectations with respect to, among other things, the timing and amount of funding required to execute the Company's programs, development and business plans, capital and exploration expenditures, the effect on the Company of any changes to existing legislation or policy, government regulation of mining operations, the length of time required to obtain permits, certifications and approvals, the success of exploration, development and mining activities, the geology of the Company's properties, environmental risks, the availability of labour, the focus of the Company in the future, demand and market outlook for precious metals and the prices thereof, progress in development of mineral properties, the Company's ability to raise funding privately or on a public market in the future, the Company's future growth, results of operations, performance, and business prospects and opportunities. Wherever possible, words such as "anticipate", "believe", "expect", "intend", "may" and similar expressions have been used to identify such forward-looking information. Forward-looking information is based on the opinions and estimates of management at the date the information is given, and on information available to management at such time. Forward-looking information involves significant risks, uncertainties, assumptions, and other factors that could cause actual results, performance or achievements to differ materially from the results discussed or implied in the forward-looking information. These factors, including, but not limited to, fluctuations in currency markets, fluctuations in commodity prices, the ability of the Company to access sufficient capital on favourable terms or at all, changes in national and local government legislation, taxation, controls, regulations, political or economic developments in Australia or other countries in which the Company does business or may carry on business in the future, operational or technical difficulties in connection with exploration or development activities, employee relations, the speculative nature of mineral exploration and development, obtaining necessary licenses and permits, diminishing quantities and grades of mineral reserves, contests over title to properties, especially title to undeveloped properties, the inherent risks involved in the exploration and development of mineral properties, the uncertainties involved in interpreting drill results and other geological data, environmental hazards, industrial accidents, unusual or unexpected formations, pressures, cave-ins and flooding, limitations of insurance coverage and the possibility of project cost overruns or unanticipated costs and expenses, and should be considered carefully. Many of these uncertainties and contingencies can affect the Company's actual results and could cause actual results to differ materially from those expressed or implied in any forward-looking statements made by, or on behalf of, the Company. Prospective investors should not place undue reliance on any forward-looking information.

Although the forward-looking information contained in this news release is based upon what management believes, or believed at the time, to be reasonable assumptions, the Company cannot assure prospective purchasers that actual results will be consistent with such forward-looking information, as there may be other factors that cause results not to be as anticipated, estimated or intended, and neither the Company nor any other person assumes responsibility for the accuracy and completeness of any such forward-looking information. The Company does not undertake, and assumes no obligation, to update or revise any such forward-looking statements or forward-looking information contained herein to reflect new events or circumstances, except as may be required by law.

No stock exchange, regulation services provider, securities commission or other regulatory authority has approved or disapproved the information contained in this news release.

Appendix 5B

Mining exploration entity or oil and gas exploration entity quarterly cash flow report

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Name of entity

Ardea Resources Limited

ABN	Quarter ended ("current quarter")
30 614 289 342	30 June 2021

Consolidated statement of cash flows		Current quarter $A'000	Year to date (12 months) $A'000
1.	**Cash flows from operating activities**		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	(1,653)	(6,172)
	(b) development	(232)	(1,147)
	(c) production	-	-
	(d) staff costs	(119)	(500)
	(e) administration and corporate costs	(149)	(624)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	7	62
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	121	121
1.8	Other (provide details if material) – R&D Refund	1,040	1,040
1.9	**Net cash from / (used in) operating activities**	**(985)**	**(7,220)**

2.	**Cash flows from investing activities**		
2.1	Payments to acquire or for:		
	(a) entities	-	-
	(b) tenements	(1,800)	(1,920)
	(c) property, plant and equipment	-	(12)
	(d) exploration & evaluation	-	-
	(e) investments	-	-
	(f) other non-current assets	-	-

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Consolidated statement of cash flows		Current quarter $A'000	Year to date (12 months) $A'000
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	82
	(c) property, plant and equipment	-	-
	(d) investments	141	141
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	**Net cash from / (used in) investing activities**	**(1,659)**	**(1,709)**

3.	**Cash flows from financing activities**		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	4,878
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	(265)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
3.10	**Net cash from / (used in) financing activities**	**-**	**4,613**

4.	**Net increase / (decrease) in cash and cash equivalents for the period**	(2,644)	(4,316)
4.1	Cash and cash equivalents at beginning of period	8,333	10,005
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(985)	(7,220)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(1,659)	(1,709)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	4,613

Consolidated statement of cash flows		Current quarter $A'000	Year to date (12 months) $A'000
4.5	Effect of movement in exchange rates on cash held	-	
4.6	**Cash and cash equivalents at end of period**	**5,689**	**5,689**
	Net Funds received from Placement on 5 July 2021	**5,324**	**5,324**
	Revised Cash position as at 5 July 2021	**11,013**	**11,013**

5.	**Reconciliation of cash and cash equivalents** at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter $A'000	Previous quarter $A'000
5.1	Bank balances	3,548	1,183
5.2	Call deposits	2,141	7,150
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	**Cash and cash equivalents at end of quarter (should equal item 4.6 above)**	**5,689**	**8,333**

6.	**Payments to related parties of the entity and their associates**	Current quarter $A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	242
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

Salaries, Directors fees and Consulting fees paid to Directors - $223,922
Payments for Kalgoorlie Office to a Director related entity for the quarter - $18,750

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7.	**Financing facilities** *Note: the term "facility' includes all forms of financing arrangements available to the entity.* *Add notes as necessary for an understanding of the sources of finance available to the entity.*	**Total facility amount at quarter end $A'000**	**Amount drawn at quarter end $A'000**
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	**Total financing facilities**	-	-
7.5	**Unused financing facilities available at quarter end**		-
7.6	Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

8.	**Estimated cash available for future operating activities**	**$A'000**
8.1	Net cash from / (used in) operating activities (item 1.9)	(985)
8.2	(Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	-
8.3	Total relevant outgoings (item 8.1 + item 8.2)	(985)
8.4	Cash and cash equivalents at quarter end (item 4.6)	5,689
8.5	Unused finance facilities available at quarter end (item 7.5)	-
8.6	Total available funding (item 8.4 + item 8.5)	5,689
8.7	**Estimated quarters of funding available (item 8.6 divided by item 8.3)**	5.7

Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.

8.8 If item 8.7 is less than 2 quarters, please provide answers to the following questions:

8.8.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?

Answer: N/A

8.8.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?

Answer: N/A

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: N/A

Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.

Compliance statement

1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.

2 This statement gives a true and fair view of the matters disclosed.

Date: 27 July 2021

Authorised by: Ardea Board of Directors

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [*name of board committee – eg Audit and Risk Committee*]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.

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Ardea Resources Limited Tenement Schedule (WA) as at 30 June 2021

Goongarrie Hub

Tenure	Location	Ardea Interest (%)		Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E24/196	Goongarrie	100		Live		**M24/731**	Goongarrie	100	Live	3
E24/209	Goongarrie	100		Live		**M24/732**	Goongarrie	100	Live	3
E24/211	Goongarrie	100		Pending		**M24/744**	Goongarrie	100	Live	
E29/934	Goongarrie	100		Live		**M24/778**	Goongarrie	100	Live	3
E29/1028	Goongarrie	100		Live		**M29/167**	Goongarrie	100	Live	
E29/1038	Goongarrie	100		Live		**M29/202**	Goongarrie	100	Live	
E29/1039	Goongarrie	100		Pending		**M29/272**	Goongarrie	100	Live	
E29/1045	Goongarrie	100		Live		**M29/278**	Goongarrie	100	Live	
E29/1048	Goongarrie	100		Live		**M29/423**	Goongarrie	100	Live	
E30/500	Goongarrie	100		Live		**M29/424**	Goongarrie	100	Live	
E30/501	Goongarrie	100		Live		**M29/426**	Goongarrie	100	Live	
E30/502	Goongarrie	100		Live		**P24/5260**	Goongarrie	100	Live	
G29/25	Goongarrie	100		Pending		**P24/5328**	Goongarrie	100	Live	
L24/239	Goongarrie	100		Live		**P24/5329**	Goongarrie	100	Live	
L29/134	Goongarrie	100		Live		**P24/5265**	Goongarrie-Carr Boyd	100	Live	
L29/135	Goongarrie	100		Live		**P24/5169**	Goongarrie-Windanya	100	Live	
L30/67	Goongarrie	100		Live		**P24/5480**	Goongarrie-Windanya	100	Live	
L30/68	Goongarrie	100		Live		**M24/919**	Goongarrie-Scotia	100 Ni rights	Live	6
L16/141	Goongarrie	100		Pending		**M24/959**	Goongarrie-Scotia	100 Ni rights	Live	6
L30/85	Goongarrie	100		Pending		**M24/541**	Goongarrie	100	Live	
P29/2646	Highway North	100		Pending		**P29/2650**	Highway North	100	Pending	
P29/2647	Highway North	100		Pending		**P29/2651**	Highway North	100	Pending	
P29/2648	Highway North	100		Pending		**E29/1125**	Goongarie East	100	Pending	
P29/2649	Highway North	100		Pending		**L29/146**	Goongarie East	100	Pending	
P24/5528	Goongarrie	100		Pending						

Goongarrie Hub Expansion
Siberia

Tenure	Location	Ardea Interest (%)	Status	Note
E24/203	Siberia	100 non Au-Ag rights	Live	4
E29/889	Siberia	100 non Au-Ag rights	Live	4
M24/634	Siberia	100 non Au-Ag rights	Live	1,4
M24/660	Siberia	100 non Au-Ag rights	Live	4
M24/663	Siberia	100 non Au-Ag rights	Live	4
M24/664	Siberia	100 non Au-Ag rights	Live	4
M24/665	Siberia	90 non Au-Ag rights	Live	2,4
M24/683	Siberia	100 non Au-Ag rights	Live	4
M24/686	Siberia	100 non Au-Ag rights	Live	4
M24/772	Siberia	100 non Au-Ag rights	Live	4
M24/797	Siberia	100 non Au-Ag rights	Live	4
M24/915	Siberia	100 non Au-Ag rights	Live	4
M24/916	Siberia	100 non Au-Ag rights	Live	4
P24/5235	Siberia	100	Live	
P24/5236	Siberia	100	Live	
P29/2484	Siberia	100	Live	
P29/2485	Siberia	100	Live	
P24/5416	Siberia	100	Live	
P24/5417	Siberia	100	Live	
P24/5418	Siberia	100	Live	

Goongarrie Hub Expansion
Black Range

Tenure	Location	Ardea Interest (%)	Status	Note
M24/757	Black Range	100 non Au-Ag rights	Live	4
M24/973	Black Range	100 non Au-Ag rights	Pending	4
P24/4395	Black Range	100 non Au-Ag rights	Live	4
P24/4396	Black Range	100 non Au-Ag rights	Live	4
P24/4400	Black Range	100 non Au-Ag rights	Live	4
P24/4401	Black Range	100 non Au-Ag rights	Live	4
P24/4402	Black Range	100 non Au-Ag rights	Live	4
P24/4403	Black Range	100 non Au-Ag rights	Live	4

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Kalpini Hub
Goongarrie Hub Expansion

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E27/524	Kalpini	100 non-Au rights	Live	9	**P25/2454**	Kalpini-Bulong	100	Live	
E27/606	Kalpini	100	Live		**P25/2455**	Kalpini-Bulong	100	Live	
E27/607	Kalpini	100	Live		**P25/2456**	Kalpini-Bulong	100	Live	
E28/1224	Kalpini	100	Live		**P25/2457**	Kalpini-Bulong	100	Live	
E28/2978	Kalpini	100	Pending		**P25/2458**	Kalpini-Bulong	100	Live	
M27/395	Kalpini	100	Live		**P25/2459**	Kalpini-Bulong	100	Live	
M27/506	Kalpini	100	Live		**P25/2460**	Kalpini-Bulong	100	Live	
M27/512	Kalpini	100	Pending		**P25/2461**	Kalpini-Bulong	100	Live	
M28/199	Kalpini	100	Live		**P25/2482**	Kalpini-Bulong	100	Live	
M28/201	Kalpini	100	Live		**P25/2483**	Kalpini-Bulong	100	Live	
M28/205	Kalpini	100	Live		**P25/2484**	Kalpini-Bulong	100	Live	
E27/278	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2559**	Kalpini-Bulong	100	Live	
E27/438	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2560**	Kalpini-Bulong	100	Live	
E27/520	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2561**	Kalpini-Bulong	100	Live	
E27/579	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2609**	Kalpini-Bulong	100	Live	
E28/1746	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2613**	Kalpini-Bulong	100	Live	
E28/2483	Kalpini-Acra	100 Ni Lat Ore	Live	5	**P25/2614**	Kalpini-Bulong	100	Live	
E25/578	Kalpini-Bulong	100	Live		**P25/2615**	Kalpini-Bulong	100	Live	
M25/59	Kalpini-Bulong	100	Live		**P25/2650**	Kalpini-Bulong	100	Live	
M25/134	Kalpini-Bulong	100	Live		**P26/4542**	Kalpini-Bulong	100	Pending	
M25/145	Kalpini-Bulong	100	Live		**P26/4543**	Kalpini-Bulong	100	Pending	
M25/151	Kalpini-Bulong	100	Live		**M31/488**	Kalpini-Lake Rebecca	100	Pending	
M25/161	Kalpini-Bulong	100	Live		**P31/2038**	Kalpini-Lake Rebecca	100	Live	
M25/171	Kalpini-Bulong	100	Live		**P31/2039**	Kalpini-Lake Rebecca	100	Live	
M25/187	Kalpini-Bulong	100	Live		**P31/2040**	Kalpini-Lake Rebecca	100	Live	
M25/209	Kalpini-Bulong	100	Live		**E27/643**	Kalpini	100	Pending	
E27/646	Kalpini	100	Pending		**E27/647**	Kalpini	100	Pending	
E28/3139	Kalpini	100	Pending		**M25/19**	Kalpini-Bulong	100	Live	15
P25/2296	Kalpini-Bulong	100	Live	15	**P25/2307**	Kalpini-Bulong	100	Live	15
P25/2297	Kalpini-Bulong	100	Live	15	**P25/2308**	Kalpini-Bulong	100	Live	15
P25/2304	Kalpini-Bulong	100	Live	15	**P25/2408**	Kalpini-Bulong	100	Live	15
P25/2305	Kalpini-Bulong	100	Live	15	**P25/2409**	Kalpini-Bulong	100	Live	15
P25/2306	Kalpini-Bulong	100	Live	15					

Yerilla Hub
WA Regional

Tenure	Location	Ardea Interest (%)	Status	Note
E39/2188	Yundamindra	100	Live	
M15/1101	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1263	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1264	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1323	WA Regional	Pre-emp Ni-Co Lat	Live	7
M15/1338	WA Regional	Pre-emp Ni-Co Lat	Live	7
M27/510	WA Regional	100 Ni Lat Ore	Live	8
M27/272	Kanowna East	Non-Au Rights	Live	10
E31/1261	Pinjin	100	Pending	
E28/3036	Pinjin South	100	Pending	
E31/3134	Pinjin	100	Pending	
E28/3040	Pinjin South	100	Pending	
E26/228	Gidji	100	Pending	

Goongarrie Hub Expansion

Tenure	Location	Ardea Interest (%)	Status	Note
E39/1954	Yeriall-Aubils	100	Live	
E31/1092	Yerilla-Boyce Creek	100	Live	
E31/1169	Yerilla-Boyce Creek	100	Live	
E31/1208	Yerilla-Boyce Creek	100	Live	
E31/1213	Yerilla-Boyce Creek	100	Live	
M31/483	Yerilla-Boyce Creek	100	Live	
M31/493	Yerilla-Boyce Creek	100	Pending	
M31/475	Yerilla-Jump Up Dam	100	Live	
M31/477	Yerilla-Jump Up Dam	100	Live	
M31/479	Yerilla-Jump Up Dam	100	Live	

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Kookynie Gold-Nickel

Tenure	Location	Ardea Interest (%)	Status	Note
E40/350	Kookynie	0	Live	11
E40/357	Kookynie	0	Live	11

Perrinvale Nickel-Gold

Tenure	Location	Ardea Interest (%)	Status	Note
E29/1006	Perrinvale	100	Live	
E29/1078	Perrinvale	100	Live	

Mt Zephyr Gold-Nickel

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E37/1271	Mt Zephyr	100	Live	12	**E39/1706**	Mt Zephyr	100	Live	12
E37/1272	Darlot East	100	Live	12	**E39/1854**	Mt Zephyr	100	Live	12
E37/1273	Darlot East	100	Live	12	**E39/1985**	Mt Zephyr	100	Live	12
E37/1274	Mt Zephyr	100	Live	12					

Bedonia Gold-Nickel

Tenure	Location	Ardea Interest (%)	Status	Note	Tenure	Location	Ardea Interest (%)	Status	Note
E63/1827	Bedonia	100	Live	14	**E63/1929**	Bedonia	100	Live	14
E63/1828	Bedonia	100	Live	13	**E63/1974**	Bedonia	100	Live	14
E63/1856	Bedonia	100	Live	13	**E63/1976**	Bedonia	100	Live	14
E63/1857	Bedonia	100	Live	13	**E63/1995**	Bedonia	100	Pending	14
E63/1928	Bedonia	100	Live	13	**E63/2008**	Bedonia	100	Live	14

Ardea Resources Limited Tenement Schedule (NSW) as at 30 June 2021

Lachlan Fold Belt – Ardea

Tenure	Location	Ardea Interest (%)	Status	Note
EL 8557	Restdown Lithium	100	Live	

Notes:	
1.	Britannia Gold Ltd retains precious metal rights.
2.	Impress Ventures Ltd has a 10% equity free-carried interest to a decision to mine.
3.	Norton Gold Fields Limited retains certain Au claw-back rights and royalty receivable.
4.	Ora Banda Mining Ltd holds Au-Ag rights while Ardea retains all non Au-Ag rights.
5.	Acra JV – Northern Star Resources Ltd earn-in with Essential Metals Limited. Former holds gold rights while latter retains nickel sulphide rights. Ardea retains rights to Ni laterite ore.
6.	Black Mountain Gold Limited all rights with exception of Ardea retaining Ni rights.
7.	Ramelius Resources Limited assignee (Maximus Resources Ltd) all rights, Ardea pre-emptive right to Ni-Co laterite.
8.	Paddington Gold Pty Ltd all mineral rights (except nickel sulphide) while Ardea retains rights to nickel laterite ore.
9.	By Sale Agreement between Northern Star (Carosue Dam) Pty Ltd and Kalnorth Gold Mines Ltd, Northern Star (Carosue Dam) Pty Ltd now owns Au rights while Ardea retains non-Au rights.
10.	Northern Star (Kanowna) Limited holds Au rights. Ardea retains non-Au rights.
11.	The Option to purchase the tenements was transferred to Metalicity Limited on 21 November 2020. Ardea retains non Au rights.
12.	The Mt Zephyr/Darlot East tenements were farmed out to Red 5 Limited on 18 November 2020 whereby Red 5 Limited may earn 80% equity interest. Ardea is free carried to Decision to Mine.
13.	By a Tenement Sale and Purchase Agreement executed on 8 February 2021, Bedonia East was sold to Moneghetti Minerals Limited. Completion is subject to Moneghetti Minerals Limited successfully listing on the ASX in 2021.
14.	By a Tenement Sale and Purchase Agreement executed on 25 February 2021, Bedonia West was sold to Larvotto Resources Limited. Completion is subject to Larvotto Resources Limited successfully listing on the ASX in 2021.
15.	Purchase of tenements by Binding Terms Sheet and Alluvial Rights Agreements dated 4 June 2021 between the Seller Steven Lionel Kean and Ardea Resources Limited. Transfers pending stamp duty assessment by Department of Finance, WA.

Interests in Mining Tenements and Petroleum Tenements Acquired or Increased during the June Quarter 2021

Ardea WA Tenements

Tenure	Location	Nature of Interest	Ardea Interest beginning Quarter (%)	Ardea Interest end Quarter (%)
E28/3134	Pinjin	Application	0	100
E28/3139	Kalpini	Application	0	100
M31/493	Yerilla-Boyce Creek	Application	0	100
P24/5528	Goongarrie	Application	0	100

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